V

Thesis on

A L C H O L I S M

By

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A L C O H O L I S M.

P R O L O G U E.

For generations past, the various problems inherent to alcoholism have been the subject of constant investigation and laborious study by innumerable observers, both medical and lay, from the hygienic, economic, and philanthropic standpoints.

Scientific societies throughout the world have given their learned and weighty opinions, and the various governments have passed laws with a view to checking to some extent the multitude of evils which then and now afflict such countries. But, in spite of all these measures, the increase continues. The victims of alcohol crowd the prisons, hospitals, and asylums; and the progress of pauperism keeps pace with the physical and moral deterioration of the people - without anything being done that can prevent or arrest the evil.

In spite of so many meritorious efforts, the mass of the people have remained unacquainted with the dangers of alcohol as directly bearing upon their well-being.

Repeated warnings, even urgent appeals, have met with the indifference of some, the egotism or contempt of others - a passive resistance that nothing has been able to shatter. The majority admit that the evil is great and that some remedy is necessary; but beyond that they do nothing to help to ameliorate the existing evils.

This passiveness is not only met with amongst the working classes, where alcohol makes most ravages, but to some extent amongst the cultivated classes. Even in the medical profession itself, one often meets with an incredible indifference towards those who look towards them as the advocates of hygiene, and as the natural custodians of the public health.

Under these conditions, those who have recognised the necessity of an energetic and sustained warfare against alcoholism are obliged to persist in the struggle until, public opinion having been aroused, they will come to react vigourously against an evil which compromises, not only the moral and physical well-being of the individual, but also the honour and dignity of all civilised nations.

DEFINITION, SYNONYMS, AND HISTORICAL NOTE.

By the term alcoholism is meant the morbid results of the excessive or prolonged use of alcoholic liquors. It admits of various subdivisions, and these will be considered in due course.

Amongst the synonyms which have from time to time been employed we find the following:

Alcoholismus; Ebrietas; Ebriositas; Inebriety; Tremulentia; Drunkenness; Chronic Alcoholic Intoxication; Dipsomania; Ivrognerie (French); Trunkenheit; Trunksucht (German).

In an essay of this kind, the most superficial account of what is known of the effects of alcoholic excess, as manifested in the individual and in society at large, interesting as it might be to the non-medical reader, would be out of place. A large treatise, rather than a thesis, would be required to embody a record of the experiences so vague, facts so uncertain, opinions so much at variance, and citations so numerous - at least if such were to be of any value.

In view of this, my object in the following pages shall be to present the subject in its present aspects without reference to points of mere historical interest - except when such are necessary for the purpose of efficient discussion. In short, the question of the history of the abuse of alcoholic beverages would be the history of the civilized world from the most ancient times until now: for the abuse of the drug has always been a blot upon the pages of human progress, and even in the history of the most barbarous races of mankind.

E T I O L O G Y.

PREDISPOSING CAUSES.

SEX.

In this country at least, sex appears to have some predisposing influence: for the proportion of women drunkards to males is about one to three, and of prisoners convicted ten times over (these are mostly habitual drunkards) the women are nearly double the men. Puberty, menstruation, lactation, the menopause, and the excitable temperament of women exert a strongly predisposing influence towards inebriety.

AGE.

A survey of my own cases, in conjunction with those recorded in the available literature, has shown me that more than one-half of all these are persons between thirty and forty years of age - the period of liability from forty to forty-five coming next, followed by that of from forty-five to fifty. A sudden fall occurs above fifty, till beyond sixty-five there is only a half of a per cent. During the time I have been in practice, I have seen cases under fifteen years of age, while even in children from five years of age and upwards, I have found the liking for the drug present; and children of seven years and older have developed symptoms of delirium tremens. It is therefore necessary that all kinds of drinks which contain alcohol - no matter how little of it - should never enter into the dietary of young persons, - the more so as many juveniles inherit the drink-craving, and have this morbid inheritance lighted into activity by even a small quantity of the weakest alcoholic berage. This youthful inebriety has attracted considerable attention in France and Austria; and the reports of the Parisian police show that during the past twenty years the number of youths committed of violent offences has greatly increased - these being mainly the product of ancestral alcoholic, mental, and moral degradation (Quart. Jour. of Inebriety, April, 1892). Joseph Parrish (Proc. Soc. for the Study of Inebriety, No. 13) affirms that there is a climacteric in the disease of inebriety, and places it at, generally speaking, between forty and fifty. I am, however, inclined to locate this climacteric between fifty-five and sixty-five, - though I have seen it occurring at fifty-eight, and also seventy, in certain instances. In such cases no external or moral influence appears to have anything to do with the reduction or cessation of intoxication - the desire to drink ceasing, so that the drinker loses his taste for the drug. This climacteric appears to set in when the nervous periodicities become faint, when the neurotic susceptibility becomes weaker, when the vital energy diminishes, and when the force of the passions abates. On such grounds I would explain the fact that few persons become drunkards after sixty, though some have been known to become so after eighty. Many of the cases die of chronic alcoholism before the climacteric can be reached. If they

survive, the impulse to drink becomes much weaker. This inebriate climacteric is seen only in cases of alcoholism.

RELIGION.

Religious excitement uncontrolled predisposes to alcoholism; while, as in Buddhism and Brahminism, strict self-dicipline and self-restraint contribute to lessen the alcoholic impulse, and at the same time to control the craving. Owing largely to the religious hygienic doctrines and observances, the Hebrews are ramarkably free from alcoholism; and the teaching and example of Mohammed are said to have produced the same desirable condition amongst his followers to the present day. In this country no single religious denomination appears to be more addicted to the abuse of stimulants than another: at least I can find no satisfactory evidence to the contrary.

RACE.

The inhabitants of Belgium, Denmark, and Russia show the greatest proportional extent of alcoholism; and the British Islands and United States of America appear to be not far behind. France, Sweden, Austria, Switzerland, and Germany also have their populations seriously addicted to the vice of inebriety. So far as I can ascertain from a mass of statistical returns, the Italians and the Spaniards seem to be by far the most temperate nations on the continent of Europe. The milder and more sluggish temperament of the inhabitants of Eastern countries probably accounts for the serious effects which the drug has upon them as compared with the western nations. It is, par excellence, the Anglo-Saxon race which is peculiarly susceptible to alcohol and other narcotics. The negroes are readily excited to drunkenness, owing to their versatile temperament, and more quickly killed thereby - though there is less alcoholism amongst them then any other race. The American Indians take readily to alcohol; and while the negro under its influence is merry and boistrous, he is infuriated to madness, and drinks himself to death usually when once he has appreciate the flavour of the alcoholic beverage in question. I have already referred to the remarkable freedom of the Jews from inebriety: only very seldom does one come across a drunken member of that ancient race.

CLIMATE.

Certain meteorological conditions appear to predispose to alcoholism, and this by exerting a depressing effect upon the nervous system and higher centres. Thus, fog and damp act in this way; whereas clear and dry weather, by giving tone and vigour, have quite the opposite tendency. Sultry weather and east winds cause many alcoholics to indulge in their favourite beverage to excess; and those existing in a malarial environment appear to have a difficulty in abstaining. Colder climates seem to predispose to inebriety more than hot ones. Thus, as a general rule, the northern part of France is more drunken than the southern regions of that country. The cold districts of Russia, Sweden, Belgium, and Germany contain more alcoholic persons than the southerly and warm regions of Spain and Italy; and the craving would seem to be less easily resisted in the northern part of

of the United States and in Canada than in the southern United States - New Orleans and other seaports excepted.

EDUCATION.

Drunkenness is admitted by all who have had anything like an experience in the disease to be exceedingly common amongst those who have had a liberal, and even a University, education. A large proportion of my own cases have been amongst the highly cultured, whose extreme nervous susceptibility and alertness of mind render them, in the absence of bodily exercise, peculiarly susceptible to nerve exhaustion and storm - culminating in an alcoholic debauch, with or without the chronic alcoholic tendency subsequently.

FINANCIAL CIRCUMSTANCES.

Poverty is usually the result of drunkenness, and not its cause; still, in some cases, the despair and depression produced by deprivation or lack of means have culminated in a depressed state of mind and alcoholism.

LACK OF OCCUPATION.

It is always to be feared that an idle person will lapse into drunkenness. Dawdlers, the frequenters of clubs, men-about-town, and quidnuncs often fall victims to a fate from which occupation and the necessity for work would have saved them. It is my belief that the custom of treating enormously augments the dangers to which such persons are habitually exposed in the matter of alcoholic excesses. Still, the moderate and occasional use of alcohol, in the form of food and as a source of social pleasure, is not fraught with the moral and physical evils attributed to it by many earnest and sincere persons. On the contrary, it is probable that the well-regulated and temperate use of good wines, under proper circumstances with food, is, in a majority of individuals, attended with benefit. Those who suffer from the effects of excesses do not usually reach them by this route.

MARRIAGE.

This does not appear to predispose to alcoholism. Elderly spinsters, persons of the landlady class making a business of keeping lodgings, and widows advanced in life, are said to often fall into intemperate habits.

HEREDITY.

It is impossible to ignore the influence of heredity in the production of the drunkard, although it is by no means always operative. Bevan Lewis (Text-Book of Mental Diseases, London, 1889) found an ancestral history of insanity in 27 per cent., while, including epileptic and other neuroses, there were 37 per cent. with a neurotic inheritance. Apart from disease-inheritance generally, various maladies born of alcohol are transmissible. Thus, inherited alcoholic gout may be seen in a total abstainer. So with the disease of inebriety, the inebriate neurosis or diathesis. The strong alcoholic-impulse has been manifested at a very early age in some cases. Children of four, five, six, and seven have drunk eagerly, and to drunkenness, on the very first occasion

when drink was given them,while the other children with them have evinced no such eagerness.This morbid impulse, unless resisted,tends to grow stronger.Even when resisted successfully,this transmitted nervous deficiency may reamin latent,through a life of abstention from intoxicants,ever ready to be lit up into activity on the application of an exciting provocation.Inebriate heredity may be similar or dissimilar,i.e.,homogeneous or heterogeneous.In the latter,inebriety may in the offspring be transformed into various other nervous disorders,such as epilepsy in one descendant,idiocy in a second,insanity in a third,hysteria in a fourth,and so on.The similar form may consist in either a propensity to intoxication without any apparent temptation as excitant,or an intoxication-impulse on being given a little alcoholic liquid to drink.On the contrary,the altered transmission may be,in the form of inebriety, descended from a non-inebriate source.Inebriate heredity may be immediate (from one or both parents) or mediate (from one or more grandparents). It may also be single (when one) or double (when more than parent or grandparent has been the origin).The following is the inebriate genealogy of generations given by M. Morel,a distinguished French writer:First generation:-Alcoholic male excess,depravity,and brutish disposition. Second generation:-Alcoholism,maniacal attacks,and general paralysis.Third generation:-Sobriety,but hypochondriasis, persecutions mania,and homocidal proclivity. Fourth generation:-Feeble intelligence,mania at sixteen,stupidity,idiocy,and impotence with race extinction.In a comparison of the health history of ten families of drunkards with that of ten temperate families,Demme found that the direct progeny of drunken parentage amounted to fifty-seven,of whom twenty-five died from insufficient vitality,etc.,in their first year;six were idiots,five dwarfed,five epileptics,one choreic and idiotic,and five had hydrocephalus,hare-lip and club-foot.Only 17.5 per cent.enjoyed good health in childhood.Of the non-drunken stock there were sixty-one:only five died from insufficient vitality,four suffered from curable nervous affections,and two had congenital defects, and 81.9 per cent.were sound in mind and body during childhood and youth.Clouston,in the Annual Report of the Edinburgh Royal Asylum,1889,points out that the alcoholic craving got beyond the control of many minds hereditarily weakened with a taste for the drug. Yellowless (Brit.Med.Jour.,Oct.4,1873)does not believe that the mere habit of intemperance in the individual produces the dipsomaniac condition,but that usually the baneful heritage entailed in their descendants by intemperate progenitors results in its development;and that that thee vice on one generation becomes "the weakness of the next,liable to be invoked at any time by the present vice and then bring a double curse". Maudsley (Responsibility in Mental Disease,p.43) says that he could bring forward innumerable facts to prove that parental drunkenness or dipsomania,which breaks out from time to time in paroxysms that get beyond control,may lead to idiocy,suicide,or insanity in their children."It would seem to be truly a nervous disease, a kind of insanity.In its outbreaks it displays the

periodicity which is a common character of nervous diseases,and exhibits its kinship to insanity,not only by the fact that when occurring in one generation it may become the occasion of mental derangement,or suicide in the next generation,but conversely by the fact that insanity in the parent may occasion dipsomania in the offspring". There are many who believe that all passions are hereditary;and therefore that anger,fear, jealousy,libertinage,and drunkenness can all be transmitted to the children,especially if both parents are affected:this occurs by direct constitutional inheritance,not merely by force of example or education.At a committee of the Lower House of the Convocation of Canterbury (Rep.of the Committee),one of the speakers said that he had had his attention directed for some years to the more permanent effects of drinking habits, as tending to produce a depraved or debilitated offspring;and that he had collected some very curious facts on the point,tending to prove that not only lunacy,but also other diseases of the brain,may be traced to the alcoholism of the parents.The next speaker said that his parish exhibited a high rate of mortality,chiefly among children,who were very often born in an imperfectly organized condition,and badly nourished afterwards, in consequence of the intemperance of the parents;also that he was constantly being called upon to sign papers for lunatics through drink.Another speaker,a superintendent of a lunatic asylum,said that he estimated the number of cases ofaceable to intemperance in his institution to be about 50 per cent.A Mitchell (Rep.of the Committee of the House of Commons on Habitual Drunkards, 1872)thinks that the children of habitual drunkards are in a larger proportion idiotic than other children,and that a larger proportion are themselves habitual drunkards,and liable in after life to the ordinary forms of insanity.In his work on "Mental Hygiene"(p.44),J. Ray affirms that habitual intemperance has a powerful effect in vitiating the quality of the cerebral tissue,and that this effect is less often seen in the drunkard himself than in his children."His habits may induce an attack of insanity,where the predisposition exists;but he generally escapes with nothing worse than the loss of some of his natural vigour and hardihood of mind. In the offspring,however,on whom the consequences of the parental vice may be visited,to the third,if not the fourth generation,the cerebral disorder may take the form of intemperance,or idiocy,or insanity,or vicious habits,or impulses to crime,or some minor mental obliquities.The frequency with which intemperance is witnessed,both in parent and child,has come to be regarded not as an accident merely,but as the result of hereditary cerebral defect.There have been cases enough, the circumstances of which exclude the influence of vicious example and training,and rendered no explanation possible but this.As a cause of idiocy in the next succeeding generation,the potency of gross intemperance has been placed beyond a doubt.The transmitted effect of intemperance may also appear in the form of a propensity to vicious courses,or a dulness of the mental percept-

ion,or irresistible impulse to crime.One child may exhibit one or more of these traits,and another may be insane or idiotic,the former no less than the latter exhibiting the legitimate effects of the parent's vice". He believes that numerous examples of this pathological law are to be found amongst the inmates of prisons.An interesting case of the influence of heredity if given by Esquirol (Mental Maladies,1845,p.489),that of a daughter of an abstaining mother and a father who was seldom sober.Her brothers were so stupid that they could never be brought to learn to read.At birth she was a dreadful sight,and she had to nurse for two years before she could acquire the instinct necessary to find the breast of her mother.A most striking case of an idiot,six years of age,is narrated in Coombe's "Constitution of Man".Only by means of a piercing shriek could he inform any one that his wants required to be supplied. His pitiable condition was attributed to the fact that both his parents were drunk at the time of his conception,though sober enough before that.Levinson(Hereditary Tendency of Drunkenness,p.53)cites the case of two cousins in Suffolk who married,and forthwith became more or less alcoholic,especially towards evening.They had five children - all hopelessly idiotic to the verge of bestiality.In his evidence before the Select Committee of the House of Commons on Habitual Drunkards (June, 1872),William Smith,the governor of the prison at Ripon,remarked that,in his experience,drunkards generally came of parents who had led bad lives."In fact I have one case in particular,of a woman who has been in different jails 33 times,and she is now serving penal servitude for seven years.She had a drunken father and mother,was a drunkard herself,and had been drinking when she committed the felony".Richardson (Diseases of Modern Life,p.272) says that the mischief inflicted on a man through his own act and deed being always transmitted to his descendants - who are thus irresponsibly afflicted - is the most solemn fact of all bearing upon the physical deterioration and upon the mental aberration produced by alcohol.He believes that amongst the many inscrutable designs of nature,none is more manifested than this,that physical vice,like physical feature, and like physical virtue,descends in line."But not one of the transmitted wrongs,physical or mental,is more certainly passed on to those unborn than the wrongs which are inflicted by alcohol".H.P.Ayres (Rep.on the Education of Imbecile and Idiotic Children,Trans.Amer. Assoc.,p.628)tells that,of 359 idiots,the condition of whose progenitors was ascertained,99 were the children of drunkards.Weismann,however,has denied the transmission of acquired characters (Somatogenic as distinguished from blastogenic),holding that the latter are handed on unaffected by the bodily environment.My own observations of drunken families is directly opposed to this view.A considerable number,as we have already seen,of persons who suffer from alcoholism are found to come of parents who have been addicted to drink;and a still greater number belong to families in which nervous disorders, and in particular neuralgia,epilepsy,and insanity,have prevailed.Others,again,are the offspring of criminals. Hence,it can no longer be doubted that particular

causes of nervous degeneration, in one or both parents, may lead to the hereditary transmission of a feeble nervous organisation, which, on the one hand, renders its possessor peculiarly liable to neuroses of every kind; and, on the other hand, an easy prey to the temptation to seek refuge from mental and physical suffering in occasional or habitual indulgence in alcohol. Thus it comes that nervous enfeeblement, produced in an ancestor by great excess in drink, is reproduced in his various descendants - with the effect of causing insanity in one, epilepsy in another, neuralgia in a third, alcoholic excess in a fourth, and so on. When it is possible to obtain fairly complete family histories, covering two or three generations, in grave nervous cases, facts of this kind are elicited with remarkable frequency. The part which heredity plays in many of the more inveterate and hopeless cases of alcoholism is wholly out of proportion to the obvious and easily recognisable part played by the momentary temptation. The disappointment of many ardent unsuccessful temperance reformers must be ascribed to the failure on their part to recognise the agency at work in such cases.

PERSONAL AND SOCIAL CONDITIONS.

Among the unfavourable moral conditions which predispose to alcoholism may be mentioned the lack of a wholesome public sentiment on the subject amongst the people themselves. This arises too often, but by no means exclusively, from poverty, and its attendant evils ignorance and vice. Alcohol is at once the refuge and snare of want, destitution, and sorrow. To the vacant and untrained mind it brings boons not otherwise to be had - excitement and oblivion. That both are brief and bought at a ruinous cost exerts but little restraining influence. Of equal, if not greater, importance are the influences which spring from ill-regulated and demoralising domestic relations, and the absence of motive and the contentment which properly belong to the family as such. Everywhere also do we find in example a potent influence. The evil of a lax, over-indulgent, or vicious early training - as shown in a want of power of application, of moral rectitude, in self-indulgence, craving for excitement, and a weak will - powerfully predispose to the temptations of alcoholism for the individual, in addition to the hereditary propensities. Occupation ranks first perhaps amongst the social conditions which predispose to alcoholism. The occupations which render those pursuing them especially liable to alcoholism may be divided into two classes, viz., (1) those in which the temptation to drink is constantly present, and (2) those in which the character of the work causes a desire for stimulants, whilst there is but little restriction on the opportunities for the gratification of the craving. In one class may be included workmen in distilleries, breweries, and bottling establishments; keepers and clerks of hotels, public houses, and restaurants; the barmen and waiters in the same trades; the salesmen who travel for dealers in wines and spirits. In my experience these occupations have furnished by far the largest number of cases of alcoholism. Occupations which involve great exposure to

the weather come under the second category.Thus, one often sees cabmen,railwaymen,coal-heavers,hawkers,and street labourers habitually addicted to excesses in alcohol.Under favourable circumstances as regards heat and confinement,exhausting toil predisposes to alcoholism,as in the case of foundrymen,workers in mills, stokers,and the like.The male-cooks in hotels and restaurants appear to be specially liable to drunkenness. Monotony of occupation,as in the case of cobblers, tailors,bakers,printers,etc.,especially when associated with long hours of toil in close and ill-ventilated workrooms,exerts a strong predisposing influence.Persons following sedentary occupations suffer from excesses sooner than those whose active outdoor life favours elimination.To the monotony of their occupation may be ascribed,in part at least,the disposition of soldiers, herdsmen,sailors,etc.,to occasional excesses as opportunities afford.Alcoholic debauches are also of common occurrence amongst persons who work irregularly and handle small change,such as butchers,hawkers,and marketmen.

The influence of no occupation has already been referred to above.

DISEASE.

Alcoholism appears to be predisposed to by various forms of disease,and also by associated indulgence.Thus, the abuse of alcohol may be lead up to by bodily weakness,and inability to cope with the daily tasks imposed by necessity,especially amongst the working classes; and many conditions of chronic disease,attended by suffering,are susceptible of great temporary relief from the taking of alcohol.This is especially the case in neuralgias,in phthisis,in dysmenorrhoea,and other sexual disorders of women,in the faintness and depression of lactation over-prolonged,in the pains and anxieties of syphilis,and in the malaise of chronic malaria.Through ignorance or recklessness,it is but a short step to habitual excess when the patient has learned that alcohol is capable of giving relief to suffering.There is also a great danger of subsequent abuse when the drug is given during convalescence from attaks of illness.It is very necessary,therefore,to acquaint oneself of the hereditary tendencies and previous habits of the patient before assuming the responsibility of continuing alcohol beyond the period of acute illness under these circumstances.That the stimulant one orders must be regulated in amount,and discontinued when one's attendance on the patient is over,is a rule never to be disregarded.The over-indulgence in tobacco has been said by some to induce alcoholic excesses.In my opinion this occurs entirely through the associations connected therewith.Those who indulge in opium,chloral,and other narcotics to excess,or habitually,are very frequently addicted to the vice of intemperance in alcohol.

HABIT.

Much of the drinking done by certain sections of the community is due to habit:this is especially true of business-men;and its importance can scarcely be

over-estimated.Like opium and other narcotics,alcohol exerts its most pernicious influence through the periodical craving on the part of the nervous system for the renewal of the stimulating effects which it causes, while it progressively shortens the period and diminishes the effect by its deteriorating action upon the peripheral and central nervous system.

SEXUAL DISORDERS.

Much of the periodical excitation to inebriety that occurs can be referred to the sexual function - especially at puberty and the menopause,during pregnancy and in parturition,and at the menstrual periods.A frequent source of secret tippling lies in the custom of administering to young women suffering from dysmennorrhoea warming drinks containig gin,brandy,or whisky in excessive amounts.Marital excesses predispose to the vice of intemperance in both sexes.

MENTAL DEPRESSION.

Persons in all classes of society have a strong predisposition to alcoholic excesses when the subjects of strong mental influences.This is especially true of domestic or commercial worry,religious or other hysteria,marital disparity,good or bad fortune,disappointment in love,fright,and other forms of shock to the nervous system.Injuries - especially to the head - acts in a similar manner.

THE EXCITING CAUSE.

The exciting cause of drunkenness is,of course, alcohol.The ALCOHOLS are a series of neutral compounds resembling bases,and exhibiting gradations corresponding to their increase in molecular weight.They are derived from the normal hydrocarbons by replacing hydrogen by the group OH.The lower alcohols are mobile liquids,readily dissolving in water and possessing the characteristic alcoholic odour;the intermediate members are more oily,and dissolve with difficulty in water; while the higher are crystalline solids without taste or odour.The alcohols resemble the fats.Their boiling-points increase gradually(with similar structure)in proportion to the increase of their molecular weights. The term ALCOHOL,then,is not restricted to an isolated compound,as there are several kinds of alcohol,of which that met with in wines,beer,brandy,etc.,is only a representative of an active series of compounds known under the same name.Alcohols are substances more or less resembling common alcohol,which has the formula C_2H_6O, and corresponds among organic substances to the hydroxides in inorganic chemistry.The principal alcohols are as follows:

Name.	Formula.	Vapour Density.	Sp.Gr. Water 100.	Boiling Point. Cent.	Fah.
Methylic Alcohol	$C\ H_4\ O$	16	.814	60	140
Ethylic "	$C_2\ H_6\ O$	23	.792	78	172
Propylic "	$C_3\ H_8\ O$	30	...	96	205
Butylic "	$C_4\ H_{10}\ O$	37	.803	101	230
Amylic "	$C_5\ H_{12}\ O$	44	.811	132	270

The fermentation of substances which contain glucose, or of one capable of transformation into glucose, gives rise to alcohol - ethylic alcohol or ethylic hydrate, whose formula is given above. Certain other alcohols (as propylic, butylic, and amylic alcohol, etc.) are, in the fermentation of saccharine liquids, also formed, and are really impurities, except in minute quantities; their intoxicating effects are much more pronounced than those of ethylic alcohol. The latter, then, is the type of the series, and forms the normal spirituous ingredient of ordinary alcoholic beverages, and that alone with which we are here chiefly concerned. The chemical change occurring in its manufacture may be conveniently represented by the following equation:

$$C_6\ H_{12}\ O_6 = 2CO_2 + 2C_2\ H_6\ O$$

(Sugar) (Carbonic Acid Gas) (Alcohol)

Prepared thus, alcohol is a colourless mobile liquid with an agreeable spirituous odour, and a pungent and caustic taste. It mixes with water and ether in all proportions, becoming fainter on dilution. There are three main groups of alcoholic beverages, namely, the spirits or distilled liquors, the wines or fermentation liquors, and the malt liquors.

1. The Spirits or Distilled Liquors.- These include whisky, rum, gin, brandy, etc.; and, in addition to the ethylic alcohol and water common to them all, they contain varying minute proportions of ethereal and oily substances, to which the peculiar odour and taste of each is due. These substances are oenanthic, acetic, and valerianic ethers - products of the relation between the corresponding acids and alcohol - and various essential oils. Traces of other alcohols are also present. Amylic alcohol - the so-called fusel oil - is present in new and coarse spirit, but especially in that derived from potatoes, in considerable amounts; and to this the potato spirit owes its peculiar deleterious properties. Richardson (On Alcohol, London, 1875) experimentally produced with amylic alcohol phenomena analogous to delirium tremens in man. Spirits also frequently contain sugar, caramel, and colouring matters derived from the cask, to which certain products of the still also owe in part their flavour. These liquors contain from forty-five to seventy per cent. of absolute alcohol by volume, and are of varying strength. It is by the distillation of ethereal oils with various aromatic herbs sweetened, or by means of its admixture with ethereal oils and sugar, that liquors - as anise, kümel, curaçoa, Benedictine, and so forth - are produced. A very high percentage of alcohol is contained in these compounds. Owing to their peculiarly dangerous properties, absinthe and another of

their number,kirsch,deserves special mention.The former if manufactured by a process consisting of an alcoholic distillate of anise,coriander,etc.,with the leaves and flowers of Artemisia absinthum,which yields a greenish essence.From sixty to seventy-two per cent.of alcohol is contained in this liquor;and it is largely due to the aromatic principles which it contains that the well-known pernicious action on the nervous system is brought about.Champouillon (Cited by Husemann;- Handb.der Tox.), as early as 1851,called attention to the fact that the French soldiers in Algiers,in consequence of excessive indulgence in absinthe,suffered especially from mania and meningitis.Decaisne (La Temperance,1873,Étude méd. sur les buveurs d'absinthe) found absinthe,in equal doses and of the same alcoholic concentration,to act much more powerfully than ordinary spirits,intoxication being much more rapidly produced and the phenomena of chronic alcoholism earlier established.Pupier (Gaz. hebd.,1872) found in those addicted to the use of absinthe marked tendency to emaciation and cirrhosis of the liver;and Magnan (Arch.de Phys.,1872) asserts that the chronic alcoholism due to this agent is characterised by the frequency and severity of the epileptic seizures which accompany it.The consumption of absinthe appears to be on the increase at present.But even more dangerous than absinthe is kirsch,which owes its flavour to the oil of bitter almonds and hydrocyanic acid which it contains.

II. The Wines or Fermented Liquors.- The chemical composition of the wines is extremely complex.They are produced by the fermentation of the juice of the grape, and owe their general characteristics to the constituents developed during that process.Their special peculiarities,however,are due to the quality of the grape from which they are produced,the soil and climate in which it is grown,and the method of treatment at the various stages of the manufacture of the wine in question. The fact that the products of neighbouring vineyards in the same region,and of different vintages from the same ground in sucesssive years,in flavour,strength,and delicacy often show wide differences goes to prove how sensitive are the influences which affect the quality of the wine.Alcohol is the most important constituent of wine;and to this agent it owes its stimulating and agreeable effects in small,its narcotic effects in large,amounts.The proportion of alcohol varies from five to twenty per cent.by volume,and in some wines even exceeds the latter amount.Some process of artificial fortification has been employed when a wine contains more than fifteen to seventeen per cent.of alcohol - the maximum which fermentation in itself will yield. Wine also contains other constituents,as sugar,which is present in widely varying amounts,and always as mixture of glucose and levulose - inverted sugar;traces of gummy matter,vegetable albumen,colouring matters,free tartaric acid and malic acid,and various tartrates,chiefly potassium tartrate(acid) or cream of tartar.In some wines there are also found traces of fatty matter.Tannin is likewise found.Small quantities of aldehyde and acetic acid are due to the oxidation of alcohol.The acetic acid thus formed further reacts upon the alcohol,forming

acetic ether.Wines owe their bouquet to the presence of compound ethers in traces,also of acetic,oenanthic,etc. During the process of fermentation carbonic acid gas is formed and evolved.It is artificially produced in champagne and other sparkling wines;and it is also retained to some extent in all wines.Many of the commercial wines - even the high-priced ones - are simply artificial combinations of alcohol,sugar,ethereal essences,and water;in short,imitations of the real article,and this is especially true of the wines that are strongly alcoholic.Wine only leads to alcoholism after prolonged and extreme abuse,such as is sometimes seen in wine-growing countries.It is therefore the least harmful of all alcoholic beverages.Taken at proper times and in moderation,it has a favourable effect upon the body generally,the function and nutrition of which it appears to stimulate.

III. The Malt Liquors.- These comprise beer,ale, porter,stout,etc.,and are fermented beverages made from a wort of germinating barley,and usually rendered slightly aromatic by hops.This process is known as brewing.Malt liquors - of which beer may be taken as the type - contain from three and three-quarters to eight per cent.by volume of alcohol,free carbonic acid, variable quantities of saccharine matters,dextrine, nitrogenous matters,extractives,bitter and colouring matters,essential oil,and various salts.Those who do not advocate total abstinence lay great stress upon the quantity of malt extractive in beer,and,in all sincerity, speak of it as "liquid bread".For the sake of argument allowing that the malt extractives have the affirmed nutritive value,beer must still be a food of the most extravagantly expensive kind:for,compared with the nutritive value of the grain from which they are derived, the dietetic value is almost of a negligible quantity. At most it is wholesome and nutritious in only moderate amounts;and its excessive consumption results in progressive deterioration of body and mind;disturbances of nutrition follow close upon undue accumulation of fat, diminished excretion of urea and carbonic oxide.Incomplete oxidation of the products of tissue-waste leads to the abnormal formation of oxalates,urates,etc.,to gout, derangements of the liver,and gall-stones.In long-continued excesses in beer,one of the effects of the lupulin is to enfeeble the powers of the reproductive organs.Five glasses of beer,of fiveper cent.alcoholic strength,contain as much alcohol as half a glass (beer) of spirits of fifty per cent.;and the inordinate consumption of beer induces mental dulness and bodily inactivity,and lessens the power of resistance to disease - hence the dangers of acute and chronic alcoholism.

PHYSIOLOGICAL ACTION OF ALCOHOL.

Absorption of alcohol may take place in various ways,and from absorbent surfaces very rapidly.It can be detected in the venous and arterial blood,and in the lymph of the thoracic duct,a minute and a half after its ingestion.It is very slightly,if at all,absorbed by the unbroken skin.Denuded surfaces and extensive wounds permit of its absorption,as in the case of surgical dressings.It is also freely absorbed,in the form of

vapour,from the pulmonary mucous membrane.Some surfaces, as the pleura and peritoneum,absorb it,as can be demonstrated by injecting it into these cavities.Its constitutional effects are also rapidly developed after hypodermic injection.Under ordinary circumstances,however, it is by way of the absorbents and the veins of the gastric mucous membrane that alcohol finds its way into the general circulation.It is probable that the greater part of the alcohol taken into the stomach undergoes absorption from that organ,and that very little of it reaches the intestines below.The rectal mucous membrane, however,readily absorbs it.Once in the blood,it travels to all parts of the body;and from the brain,the lungs, the liver,the spleen,the kidneys,etc.,it can be recovered by distillation,as well as from,of course,from the blood itself.A special affinity for alcohol is held to exist on the part of certain organs;the brain comes first,in the opinion of some,in this respect,and next in rank the muscles,the lungs,and the kidneys.Others, however,affirm that the special affinity in question is peculiar to the liver and the brain.Nevertheless,it is more in accordance with physiological facts to believe that alcohol has no such special predilection for particular organs;for alcohol,having found its way into the blood,circulates uniformly throughout the entire organism;when it is recovered in extraordinary amounts from certain organs,it is due to the relatively larger quantity of blood contained in the same.Alcohol is eliminated from the body by three channels:the air expired from the lungs,the urine,and the skin.Although it was for long suspected from the smell of the breath that alcohol was eliminated by the lungs,this has been determined experimentally by Wollowicz (Du rôle de l'alcohol et des anaesthetiques,etc.,Paris,1860),who proved, by means of indisputable chemical tests,that alcohol can be detected in the air expelled from the lungs of healthy men who have taken alcohol.He,and others,also discovered alcohol in the secretions of the skin. The presence of alcohol has likewise been discovered in the bile,saliva,the milk,and the urine.There has for long existed considerable disputation as to how alcohol that is retained in the system is disposed of:in other words, what becomes of the alcohol not eliminated as such? It is generally believed,however,that some of the alcohol undergoes chemical decomposition within the body. The steps of this process,and its ultimate result,are as yet unknown;nor,indeed,are the proportional amounts decomposed and eliminated established.Some observers regard the amount eliminated as less than that decomposed. Others suppose that the amount consumed within the body is relatively very small as compared with that disposed of by elimination.It has been shown,however,that the sojourn of alcohol within the body,unlike that of many other toxic substances,is transient,and that there remain only traces of it at a period of from twenty-four to forty-eight hours after the ingestion of a moderate amount.Upon its volatility,its avidity for water,its power to precipitate albuminous substances from solution and to dissolve fats,and its antiseptic properties the local action of alcohol depends.If we take some alcohol and apply it externally and allow it to evaporate,it causes a fall of temperature and the sensation

of cold;if the evaporation be prevented,a sensation of warmth is experienced,the skin reddens,and,if the action be prolonged,desquamation occurs.Alcohol may excite inflammation when it is applied in a concentrated condition to the mucous surfaces,but,when dilute,merely a feeling of burning and stinging.As a surgical dressing for wounds and ulcerated surfaces alcohol can be used with advantage.For this purpose its value depends on its stimulating properties,by virtue of which it exerts a favourable influence upon the granulating surfaces; and on its antiseptic qualities,which are,however,much inferior to perchloride of mercury and salicylic and carbolic acids.

According to the amount ingested and its degree of concentration,is the direct action upon the mucosa of the digestive tract.It produces a sensation of warmth in the tissues over which it passes when given in moderate amounts and diluted to the extent of fifty per-cent.or more.Thus sensation is due in part to the impression upon the nerve endings,and in part to reflex hyperaemia,which is at once excited.In persons accustomed to its use,reflex contraction of the constrictor muscles of the pharynx,with gagging,are sometimes provoked.The secretion of saliva and of the gastric juice is increased,diluted alcohol being,in respect of its physiological effect in stimulating the buccal and gastric mucous glands,inferior to no other agent.In the experimental application of a few drops of alcohol to the tongue of a dog with gastric fistula,increased secretion of gastric juice immediately results,showing that this action is due as much to reflex as to local action. Both appetite and digestion are favourably influenced by moderate doses of dilute alcohol in consequence of this action.Increased amounts of food are well borne; fats especially are more tolerable and better digested; and a more energetic peristalsis favours the absorption of the food solutions.These effects do not follow in those habituated to the use of alcohol;and if the amount be increased,or the repetition become frequent,some part of the alcohol undergoes in the stomach,with the food, acid fermentation,and acid eructations or vomitings occur - associated with which will be gastro-hepatic catarrh with its characteristic symptoms,loss of appetite,feeble digestion,diarrhoea alternating with constipation,sallowness,mental depression,and headache.Acute gastritis,or congestion and catarrhal hepatitis,may be induced when the alcohol is given in greater amounts and a little diluted.

In small doses alcohol has little or no influence either upon the action of the heart or on the condition of the vessels.In augmented amounts it increases the action of the heart both in force and frequency,as well as the arterial blood-pressure.After large doses these effects quickly pass away,and the circulation becomes depressed in consequence.The heart's action grows feebler,often slower,the pulse weaker;the blood-pressure sinks,and the arterial tension is diminished.Its physiological action is that of a direct stimulant to the heart and the vagus nerves;its toxic action is that of a depressant.Dilatation of the capillary vessels,and

increased afflux of blood,manifest themselves in the flushed face,brilliant eyes,and warmth of surface,which are familiar phenomena.The visible vascular twigs and red nose - characteristic of the chronic tippler - demonstrate the fact that frequent repetition tends to permanently impair the activity of the peripheral circulation.The internal organs are no less affected by this congestive action of alcohol,which leads to chronic derangements of the nutritive processes on the one hand, and a liability to acute local diseases and complications on the other - this,too,by interfering with their functions.Among the unsolved problems of physiological chemistry may still be reckoned the reactions which take place between the blood and alcohol;and it would therefore be a work of supererogation for me to here review the researches into this subject or to set forth their conflicting results - the more so,indeed,as the conclusions based upon the reactions between blood drawn from the vessels and tested with alcohol in the laboratory are to the enquiry wholly inapplicable.While it is generally conceded that some part of the alcohol ingested undergoes decomposition within the organism, what the steps of this process are,and what are the products thereof,have not been demonstrated.Rossbach and Nothnagel (Cited by Peters;-L'Alcohol,physiologie, pathologie,médicine légale,1885),and others,state that it is not possible to detect in the organism the products of the oxidation of alcohol,namely,aldehyde,acetic acid and oxalic acid;nevertheless,acetic acid,formed in the economy by the general combustion of alcohol,may form acetates,which,by a process of decomposition,are transformed into carbonates and water,in which form, moreover,they are eliminated by the kidneys.Peeters (L'Alcohol,etc.,1885) sums up the action of alcohol as follows:That portion of the ingested alcohol which undergoes decomposition takes from the blood some part of its oxygen for this purpose,with the result of a diminished amount of oxygen and an increase of carbonic dioxide,the blood being thus made to resemble venous blood.A part of the oxygen destined for the oxidation of waste products being thus diverted,these substances are not completely transformed.In this respect also blood charged with alcohol resembles venous blood.Even when diluted,alcohol is capable of retarding the combustion of oxidizable organic substances;and that this agent has in the blood the same chemical properties which it possesses elsewhere cannot,for any reason known,be doubted.Carbonic dioxide further tends to accumulate in the blood,because the exhalation of some part of the alcohol circulating in the blood,by way of the pulmonary mucous membrane,interferes with the elimination of this agent.One frequently finds an unusual amount of fatty matter,in a fine state of subdivision,in the blood of individuals who have died in a state of alcoholic intoxication.To some degree at least,alcohol must act directly upon the watery part of the blood,as well as upon its albuminoid principles.That the corpuscles of alcoholised animals may be found relatively large is in accord with the fact that the products of the reactions normally taking place within the corpuscles pass

with greater difficulty into the serum containing alcohol,as the current of osmosis tends rather from the serum to the corpuscles.

Twofold in its action is the effect of alcohol upon the respiration:it modifies the respiratory movements and the results of the respiratory processes. After moderate doses the movements are accelerated without disturbance of rhythm;after large doses the respiratory acts become diaphragmatic,after having been for a time embarrassed,feeble,and irregular.In all doses,and in a constant manner,alcohol modifies the results of respiration - especially when it is taken in the intervals between meals,that is,on a fasting stomach;and to the extent also of causing a decrease in the amount of oxygen absorbed and carbonic oxide exhaled.Upon the kidneys the action is that of a diuretic,the tendency, however,being much increased by the large amount of water which alcoholic beverages usually contain.Apart from this,even in small doses and without admixture with water,it has a decidedly diuretic action.The changes in the urine are qualitative as well as quantitative: the former are dependent upon its influence upon nutrition,and the latter upon its direct action upon the renal parenchyma.The amount of urea,urice acid,and other solids is always notably diminished.Especially during the period of excitation the diminution of phosphoric acid is even greater than that of the nitrogenized substances.

The temperature of the body is markedly altered by the ingestion of alcohol.After moderate doses the sensation of warmth experienced is chiefly subjective,and is accompanied by a very slight rise of temperature, amounting to a fraction of a degree Fahrenheit,and is of short duration.This rise is followed by a rapid fall, amounting to a degree or more below the normal.This effect is manifested within the course of an hour after the administration,and is of comparatively short duration,being largely influenced by the condition of the individual at the time as regards mental or physical exercise,digestion,and the like.It is in part due to the increased loss of heat from the surface of the body,favoured by the more active cutaneous circulation, but chiefly to the action of alcohol in retarding oxidation and the activity of the nutritive changes.It is more in febrile conditions than in health that the influence of alcohol on the temperature is marked.A marked fall in the bodily heat is produced by toxic doses.

Among all the effects of alcohol upon the system its influence in physiological doses upon the nervous system is most pronounced,and,indeed,the most difficult to describe with exactitude.It is usual to regard alcohol as a stimulant,and to separate the period of its direct effects in two stages - that of excitement and that of depression.Stimuli were long ago defined as agents which increase some natural action or tendency, in contradistinction to irritants which produce actions altogether abnormal.Later,Anstie (Stimulants and Narcotics,London,1864) sought to restrict the use of the term stimulant to agents which,by their direct action,

tend to rectify some deficient, or too redundant, natural action or tendency. According to him, the physiological action of alcohol is followed neither by excitement nor by depression, and its action is not truly physiological, but narcotic or toxic, when its administration is followed by these conditions. In making clear some much-debated questions the views of Anstie have served a useful purpose. According to innumerable conditions which relate to the temperament, health, habits, occupation of the individual, season, climate, social circumstances, and the quantity, kind of alcoholic drink, and its mode of administration, the effects of alcohol upon the nervous system vary within wide limits. To increase the functional activity of the brain is its first action, when given in moderate doses and under circumstances free from complications: the ideas flow more freely, the senses are more acute, speech is fluent, and the movements active. These effects accompany the increase in the heart's action, the slight rise of temperature already described, and increased activity of the organism in general. They appear in part to be due to the direct action of the substance upon the cerebrum, and in part to the increased activity of the circulation. The effect upon the nervous system has been compared by Nothnagel (loc.cit.) to the effect, in a higher sphere, of strong mental impulses. Without otherwise modifying existing traits of character, such impulses call them into action, and lead to the accomplishment of deeds quite impossible under ordinary circumstances. The effect of alcohol is like the case of a man worn out by some prolonged task which, from sheer fatigue, he despairs of ever finishing; but he at once feels refreshed, applies himself with renewed energy to his work, and perhaps finishes it with ease - when some good news is announced to him. Still, the limits of the physiological effects may easily be transcended, and the manifestations then become those of its toxic influence (these effects will be described under the heading of acute alcoholism), between the slightest grades of which and drunkenness the difference is rather one of degree than of kind.

Alcohol exerts a twofold influence upon the processes of nutrition. Of these two modes of action the first is direct and in part local, and results from the stimulation of the glandular apparatus of the mucous membrane of the stomach from increased activity of the circulation, and from direct stimulation of the vagus nerve. Hence increased secretion of the digestive juices, augmented appetite, more active peristalsis, and improved digestion - to which, indeed, the direct action of alcohol upon the cerebrum doubtless contributes. One must largely attribute to these effects the favourable influence of alcohol in the extremes of life, when it is so well borne and useful. It is in an indirect and general way that the second mode of action of this agent is exercised. I have shown that alcohol diminishes the amount of carbon dioxide expired and of oxygen inspired, that it diminishes the quantity of urea excreted, and that it lowers the temperature of the body. It follows that normal oxidation goes on more slowly - that there is diminished tissue-change. Alcohol supports the body, not by nourishing it as a food, but by curtailing waste;

it favours nutrition,not by augmenting the receipts, but by cutting down the expenses of the organism. But nutrition and waste are in health correlated and complementary.They are,in fact,essential and associated processes of life,of which one is not more necessary than the other to the maintenance of health.In various pathological states the arrest of waste is a cardinal indication,and for this purpose alcohol holds the first place.But in health this action in itself is pathological,as well as the beginning of eveil.The fat accumulation of the drunkard is due in part to the sugar and starchy matter taken in malt liquors,but much more to this control of waste,as is shown by the fact that spirit-drinkers who have sufficient food also often become corpulent.Alcoholic excesses tend not only to fat accumulation,but also to fatty degeneration of the tissues.In view of our present knowledge it is impossible to subscribe to the opinion that alcohol,in any dose or under any circumstances,is a food in the ordinary acceptance of the term.In fact,not only is alcohol not an aliment,but it is the very reverse.Not only does it not contribute to the nutrition of the body,but it little by little opposes and destroys it.This view of the question is,of course,at variance with the opinions of certain writers upon materia medica - notably with that of Sir.T.Lauder Brunton (Text-Book of Pharmacology,Therapeutics,and Materia Medica,1885),who regards "all the evidence as pointing to the fact that alcohol is a food,and in certain instances,such as febrile conditions,may be a useful food;but in health, when other kinds of food are abundant,it is unnecessary, and,as it interferes with oxidation,it is an inconvenient form of food".

SYMPTOMATOLOGY, COMPLICATIONS, AND SEQUELAE.

ACUTE ALCOHOLISM, DRUNKENNESS, OR DEBAUCH.

In order to simplify the consideration of a subject at present in such confusion, I will use the term acute alcoholism to denote the various forms of primary alcoholic intoxication in contradistinction to the conditions which are brought about by the gradual, but long-continued, action of the poison, and also to the violent and sometimes abrupt outbreaks which are secondary to these conditions. The term, from this point of view, will include all forms of drunkenness - from mere transient derangement of the normal functions of life, scarcely amounting to drunkenness, to profound alcoholic intoxication. It includes also poisoning by lethal doses of this agent. Chronic alcoholism may be the outcome of frequent repetitions of acute alcoholism at short intervals, or it may result from the constant abuse of the drug in doses so small that the evidences of its poisonous action are at no time actively manifested. Furthermore, the seemingly acute outbreaks, the symptoms of which chiefly relate to the nervous system, that occur after the condition of chronic alcoholism is fully established, are commonly preceded for a longer or shorter time by imperfectly developed symptoms of an analogous character. Acute alcoholism differs in essential particulars from these outbreaks. The fact that after excessive doses of of alcohol persons suffering from some degree of chronic alcoholism may, and as a matter of common occurrence do, suffer from acute alcoholism - i.e., get drunk, - is too obvious to demand more than passing consideration at this point; but it is scarcely necessary to dwell upon the fact that the time comes when no degree of excess will produce the ordinary manifestations of transient intoxication: for it is then that the phenomena of another and a more serious kind are apt to occur. The difference is that between the reactions of normal, or as yet quasi-normal, tissues and alcohol on the one hand, and on the other the manifestations induced by the supersaturation of tissues previously alcoholized to the point of an acquired tolerance. Such tolerance of the nervous system is in a high degree a pathological condition. Being liable to be overthrown by extraordinary excess in alcohol and by various accidents, it is in an equally high degree unstable.

COMMON DRUNKENNESS.

Unfortunately, most of the symptoms of drunkenness are too familiar, but for the sake of completeness, a brief account of the condition must be given here. The

primary pleasant effect of moderate quantities of alcohol - and it is to these that it owes its great popularity and extended use - is a sort of amiable alteration of common sensations:an exalted cerebration, more facile association of ideas,a feeling of increased bodily strength,and the banishment or vanishing of all previous unpleasant sensations in the domain of both mental and physical life.The expression "to be elevated" aptly describes this condition,which can scarcely in itself be considered an abnormal state - yet,it is so for the individual at the given time.Generally speaking,this condition leaves no unpleasant consequences behind it.The quantity and quality of the alcohol required to bring about the simplest form of alcoholism - the typical - varies greatly according to the individuality or personal character of those who take it. Only a very little more of the alcohol requires to be taken,and then the person under its influence is lost to propriety.The state previously described is now greatly exaggerated.The individual expresses his opinions loudly and more freely,the tendency to put all his feelings into words becomes more and more uncontrollable,and the power of the brain,which should control his actions and his words,becomes weaker and weaker.The Uncontrollable combinations of ideas,the unfettered imagination,causes a flood of words,without arrangement, to roll over the tongue in a ceaseless torrent.The real nature of the individual,willingly or unwillingly,comes to light,and the sober spectator or listener often gets unexpected glimpses of those dephths of the soul's inner life which the drunken person at another time would most anxiously screen from the gaze of the world around him.At the same time the excitation of the motor centres - the exaggerated tendency to action - often keeps pace with the general excitement,and urges on the drunken man to purposeless exhibitions of strength,often impelling him to seize hold of the living or lifeless objects around him.All the passions press to the front, without concealment and with exaggerated intensity;love, hatred,fear,revenge,and anger lend their changing colours to the uncontrolled impulses which urge him on. Soon,however,and often suddenly,this hypertension of the nervous system undergoes a change:the boistrousness is hushed,and the drunken man falls into a state of deep coma or narcotism.All the symptoms of excitement are weakened,and are succeeded by almost complete paralysis,and the over-stimulated and excited organs fail in their respective functions.This description, naturally enough,is not always accurate,but it pretty fairly represents the general symptoms of drunkenness. It would be a hopeless task to attempt to describe the manifold phases of acute alcoholism,as the variety of forms and the admixtures in which alcohol is taken is so great,and the susceptibility to its action so different.It must,however,be noted that in some cases the effects of alcohol are diametrically opposite, having a depressing effect upon the individual who takes it,even from the first,making him reserved,tranquil,and even secretive,and he gets on to a state of narcotism without any of the ordinary signs of drunkenness.The amount of consciousness and rationality retained by the drunken person varies greatly,and is by no means always proportioned to the quantity of alcohol imbibed.Men who are manifestly drunk often act and transact business,

though perhaps only for a brief time,with complete reflective faculties and with a good deal of consideration.It is just the same as regards the memory of what takes place in the drunken state:for,while some have no recollection of what has taken place,others remember everything when they awake,no hard and fast rule being laid down.There are certain peculiarities in the bodily condition during drunkenness and narcosis which follows - viz., the face of the drinker becomes flushed and reddenned,and the ocular conjunctivae likewise;the pulses beat more forcibly,the skin is often profusely bathed in perspiration,the frequency of the pulse is increased, and the pupils are,for the most part,contracted. The quantity of urine is generally increased,and its specific gravity diminished - especially when much water has been ingested with the alcohol.At first the movements of the voluntary muscles are considerably increased in energy,but at a later stage become considerably weakened. There is also a markedly diminished power of co-ordination.The person in the drunken condition speaks stammeringly,and he easily falls to the ground.It is a very common symptom to have repeated vomiting before narcotism sets in,but this symptom may be entirely absent. In the comatose condition,or that of fully established narcosis,the faculty of responding to external impressions - i.e., reflex action - is weakened in various degrees,and sometimes - in conditions of very deep intoxication - entirely lose.The"dead-drunk"man lies with relaxed and limp limbs,perfectly motionless,breathing deeply,but seldom.The pulse is now generally small and quick,the skin cool,and covered with a clammy sweat.It is with great difficulty,if at all,that any sign of consciousness can be elicited by loud calls,shaking, sprinkling with water,or other modes of irritation.As a rule,he wakens spontaneously,after sleeping for a variable time,with different degrees of sequelae of his excesses.Then he feels a severe oppressive headache, finds it difficult to think owing to confusion of ideas; and at first he has scarcely any recollection of his recent debauch.Symptoms of gastric catarrh are common. Severe vomiting may set in:it often lasts for some days, and several times occurs in the same day.Furthermore,he has a complete loss of appetite,great thirst,an unpleasant taste in the mouth,and,in addition,a feeling of weariness and muscular prostration felt all over the body.

Varieties of Drunkenness.- The expansive,the depressive,and the stupid are the three varieties of acute alcoholism that may,with convenience to description,be here recognized.The expansive variety is characterized by gaiety,self-satisfaction,and content. The drunkard - smiling and happy - is satisfied with the present,and also full of hope for the future.The depressive form is characterized by sadness and melancholy: the drunkard becomes sombre and taciturn,and if he talks at all,it is to lament over his misfortunes and to hold forth upon his mishaps.The period of excitement is wanting,and the drunkard passes rapidly into a condition of stupour in the stupid form.Upon close investigation, it is evident that - great as are the modifications of

the course of acute alcoholism under different circumstances and in different persons - its phenomena, and especially those which relate to the nervous system, manifest themselves in a progressive series more or less constant in most individuals. The stage of functional exaltation of the nervous system, the stage of functional perversion, and the stage of depression are the three well-characterized periods which this series includes; and degrees of acute alcoholism corresponding to these stages may with advantage be recognized. Of these, the first scarcely goes beyond the stage of excitement already described; and if the dose has been moderate or its repetition not too long continued, the symptoms gradually subside - slight headache, tinnitus aurium, some degree of muscular relaxation, and mental depression being perhaps the only sequels that remain. Partial abolition of intelligence, of general and special sensation, as well as of motor power, characterize the second degree. Hence incoherent speech, extravagant actions, blunted perceptions, inco-ordination of movements, a reeling gait, and - not rarely - vomiting and involuntary discharge of urine and faeces. This degree of acute alcoholism usually ends in deep sleep with abundant perspiration, to which succeed great lassitude and prostration and depression, accompanied with much gastro-intestinal derangement, of which the symptoms are inability to take food, coated tongue, viscid mouth, foul breath, repeated vomiting, and occasional diarrhoea. In those seasoned to excesses, these symptoms are not nearly so pronounced. The drunken person in the third degree falls, by gradual stages or abruptly, into more or less profound coma. The abolition of intelligence, sensation, and motion is complete. The face is now swollen, livid or pale, the pupils dilated, the respiration stertorous, the pulse feeble (often slow, sometimes imperceptible), the surface cool, and often bathed in perspiration. The subject may now die: at the best, the symptoms are of a serious character. These symptoms are of a gradual or progessive nature - i.e., well characterized as these three degrees of intoxication are, they are not, when occurring in the same individual successively, separated by abrupt lines of demarcation..

Variations in the conditions under which alcohol acts upon the system give rise to modifications in the symptoms of acute alcoholism; which, being endless in intensity and combination, can scarcely be discussed in full detail here. Differences in the nature and composition of the alcoholic beverages are cardinal amongst these. Here we have to do not only with the well-known differences in alcoholic drinks, as spirits and wines and malt liquors, as well as their quality and grades, but also with the differences in the chemical nature of the alcohols themselves which enter into their composition; and some of these, for the sake of elucidation, deserve mention. There are many alcohols known to the chemist, but the following are the chief: methylic, ethylic, propylic, butylic, and amylic - the chemical formulae of which have been already given. The differences in the physiological and pathological action of the members of this series were first pointed out by

Richardson (loc.cit.);and other observers - amongst whom may be mentioned Dujardin-Beaumetz and Andigie (Recherches expérimentales sur la Puissance toxique des Alcools,Paris,1879) and Rabuteau (Contributions a l'Étude des Effects physiologiques et thérapeutiques d'Alcool,Compt Rend.Soc.de Biol.,1870-71) - have also furnished valuable contributions to the subject. The researches of these observers have established the fact that the effects of the different alcohols in depressing the temperature of the body,as well as in paralyzing sensation and motion,are exactly the same, but that their narcotic influence upon the nervous system increases,dose for dose,in proportion to the amount of carbon which they contain.Ethylic alcohol is,with the exception of methylic alcohol or wood-spirit,the least rich in carbon,and the least dangerous to health. The increased consumption of alcohol,both as a beverage and in the arts,the demand for cheap,coarse spirits producing their primary narcotic effects with promptness,and the cupidity of manufacturers,have led to almost universal adulteration of the liquors of commerce with the dangerous alcohols.In modern times there has been an enormous diminution in the production of alcohol by the natural method - i.e.,by the distillation of wine. This falling off has been ascribed by many to the ravages of the phyllorexa - which is the genus of plant-lice,- the grape-vine phyllorexa or vine-pest having caused great damage to all varieties of grapes.The phyllorexa-mite is an acaridan,frequently found in association with the phyllorexa of the vine,feeding,in its young state,on the juices of the root injured by the phyllorexa,and, when older,preying upon the root-inhabiting type of that insect.The loss in question is made up by the sunstitution of spirits obtained by the distillation of various fermented grains,potatoes,molasses,etc.Not so much for clinical reasons as to direct attention to the composition of alcoholic drinks and to their deleterious properties,and in view of this substitution of the high-carbon alcohols for ethylic or ordinary spirit of wine having become so extensive,it has been suggested Peeters;- L'Alcool,1885) that alcoholism should be divided into ethylism,propylism,and butylism.Very much more marked and rapid are the effects of propyl,butyl, and amylic alcohols than those of ethylic alcohol. The stage of excitement is speedily induced,and its manifestations are intense.Hence the preference often manifested by drunkards for cheap,coarse,unwholesome spirits. On the other hand,the stage of depression quickly follows,and is itself of comparatively shorter duration than that induced by ethylic alcohol,probably for the reason that the amount required to bring it about is smaller.Muscular relaxation soon becomes general and complete;vomiting - occasionally absent in the intoxication produced by ethylic alcohol - is the rule,and is frequently repeated;insensibility speedily appears;and the fall in temperature is rapid.Muscular tremor (and especially is this true of amylic alcohol) comes on earlier,is more general and more marked,and lasts longer than that which occurs in consequence of excess in ethylic alcohol.The French observers do not consider that the complex alcohols are more slowly eliminated than ethylic alcohol - in this respect being at variance with Richardson,who affirms that they are.Still,rather

differences in degree rather than in kind are these differences in action.Peeters (loc.cit.) considers that ethylic alcohol "is less dangerous than the more complex members of the series.It is less irritating,less charged with carbon,its specific gravity is less,its fumes are less dense and escape more readily from the economy; its action ought to be less profound,less prolonged, than that of butylic,propylic,and amylic alcohol,but it is of the same nature.It is not qualitatively but quantitatively different.I suspect that the effects of liquors containing ethylic alcohol are,as a rule,less decidedly dangerous and injurious,by reason of the more favourable surroundings of those who can afford them!' It is a well-known fact that the principal groups of alcoholic beverages of commerce produce forms of alcoholism which differ in important respects - quite indepensently of the properties of the different kinds of alcohol which they contain.Of slow onset,of long duration,and of a dull and heavy character,is the intox - ication produced by the exclusive use of malt liquors. The stage of excitement is relatively brief,not often characterized by gaiety,often brutal;drowsiness soon supervenes,and deepens into unconsciousness.The after-effects are disagreeable and prolonged.The enormous quantity of fluid and the large amount of malt extractives cause gastro-hepatic derangements of a more or less distressing kind.To the hops must be ascribed the prolonged dulness which is so characteristic of the after-effects of beers and ales.To the influence of various substances used in adulteration of beers(glucose, various bitters,and salts) without doubt modifies the symptoms of alcoholism,which these beverages cause when impure.In excess,and in connection with the normal ingredients of beer,these substances exert a very deleterious action,but are not necessarily hurtful in small amounts.As a rule,the intoxication produced by pure wines is characterized by a bodily and mental activity stronger in contrast with the drunkenness produced by malt liquors.The drunkard is usually gay and vivacious - at all events,lightly merry or not hopelessly despondent.His mood is variable,changing from grave to gay. The first stage is prolonged,and the manifestations of the later stages less grave,nor are the sequels apt to be severe.The action is that of ethylic alcohol and certain ethereal substances - the latter being present, however,only in minute amounts.The rapidity of the effects depends upon the proportion of alcohol which the wine contains,which varies from about seven per cent. in the clarets to fifteen to eighteen,or even to twenty per cent.,in port and madeira.Probably owing to their greater and more prompt diuretic action,the sparkling wines,moselle and champagne,produce more transient effects than the still wines.This description applies only,however,to the wines that are pure in composition.The high percentage and toxic characters of the mixed alcohols,which form their principal ingfedients,are betrayed in the symptoms and course of the intoxication which follows the use of the artificial compounds sold everywhere as wines.The symptoms of the intoxication which follows excesses in the various

spirits of commerce have no special characteristics, and are determined to a great extent by the relative purity - i.e., freedom from admixture with the various alcohols - of the liquor from which it has been manufactured. Following a brief period of excitement only, an intoxication, which is overwhelming and profound, results from excess in potato spirit. The quantity of the liquor ingested is even of greater importance than the kind; but it is impossible here, however, to lay down hard and fast rules. Thus, a few glasses of wine will produce effects in some persons more decided than much stronger spirits in others. Those conditions which favour the absorption of alcohol hasten the production and augment the intensity of alcoholism; and the contrary is true. For instance, alcohol, when taken fasting, does much more harm than the same amount taken with a meal. Intense excitement, anger, mortification, or other violent emotion appear to be capable of increasing the effects of alcohol. Sudden transition from a warm to a cold atmosphere intensifies the action. That this effect of cold is due to suppression of perspiration, and the consequent interference with one of the channels of elimination, is much more likely than that it is due to the further depressing influence of cold upon the nervous system, already depressed by the alcohol imbibed. Occupation has, in a direct way, much to do with the facility with which alcohol is tolerated. Hard work, requiring great and continuous muscular effort, especially in the open air, diminishes the liability to acute alcoholism, while sedentary occupations and confinement strongly predispose to it. These well-recognized facts are to be accounted for by the influence of different occupations and modes of life upon the elimination of the poison. Previous custom, and hereditary peculiarities of constitution, exert an influence upon the liability of individuals to acute alcoholism, and upon its nature when induced. Those who are debilitated by chronic disease or are convalescent from acute maladies, and the otherwise feeble and anaemic, are peculiarly obnoxious to the action of this agent of intoxication. Drunkenness is induced more rapidly, and with smaller quantities of alcohol, in the summer than in the winter, in warm than in cold countries. The bad effects of this agent are particularly apt to be manifested in persons of an impressionable temperament. With such persons slight excesses are often followed by serious consequences; the intellectual disturbance is early developed, and out of proportion to the derangements of motility and sensation.

IRREGULAR FORMS OF DRUNKENNESS.

There are three irregular forms of acute alcoholism - viz., the maniacal, the convulsive, and that which occurs in persons of unsound mind.

I. THE MANIACAL FORM OF DRUNKENNESS.

The maniacal form of acute alcoholism is sometimes seen to occur after the ingestion of comparatively small quantities of alcohol - at others after the ingestion of the drug to excess, in a certain proportion of the cases, has ceased. The outbreak is usually sudden. The transition from a condition apparently normal, or marked at most by mental concentration, restlessness, and some degree of irritability, to furious mania is sometimes almost instantaneous, and the subsidence of the

symptoms,among which are general malaise,precordial distress,palpitations,flushings of the face,vertigo, tinnitus aurium,luminous sensations in the eyes such as can be produced by pressing on the eyeballs (phosphones), and a dull throbbing headache.The attack is characterized by maniacal excitement,usually of a furious kind. The restlessness is,however,far from being aimless and purposeless.On the contrary,impelled by the wildest passions,transported by rage,the patient seeks the destruction of life and property,and wreaks his vengeance on animate and inanimate objects.So great is his strength for the time being that several strong men may be unable to restrain him.He pours forth a torrent of conmingled threats and curses,in which he may be heard intelligible, and often inarticulate,sounds.Though he is beside himself,yet,so far as can be ascertained,there are neither hallucinations nor delusions by which his fury can be explained.In this respect the condition is wholly unlike that form of alcoholic mania in which the actions are explained by the imaginary surroundings and circumstances of the patient.In the maniacal form of acute alcoholism the most trifling incident,a word,a look, etc.,are sufficient to produce a tempest of rage that may end in scenes of violence.Nevertheless,the patient still retains for a time some notion of his surroundings.At length,however,he falls into a state of complete unconsciousness,and the delirium is like that of fever, of the delusion of which no recollection remains.This form of acute alcoholism is almost invariably associated with the symptoms of a high degree of cerebral hyperaemia;the attack is liable to come to a tragic end in murder or suicide;there is,as a rule,increased sensibility ot light and sound.The hands are hot,the eyes injected,the pupils dilated or contracted,the expression eager.There are abundant secretion of saliva,frequent and irregular respiration,a rapid pulse (often exceeding 100),throbbing arteries,distended veins,and a hot skin often bathed in perspiration.The sleep deepens into coma,which ends in death in a small proportion of the cases;but,as a rule,the termination of the paroxysm is as abrupt as the onset.Some abatement of the violence is quickly followed by signs of mental and bodily exhaustion;this deepens into profound sleep,which often lasts from from twelve to twenty-four hours and from which the patient awakes clear,tranquil,and as if nothing had happened,or dimly recollecting the occurrences that have passed as an hideous nightmare.

II. THE CONVULSIVE FORM OF DRUNKENNESS.

The phenomena of the convulsive form of acute alcoholism are related directly to the muscular system. The analogy to the maniacal form is very close. The attack is usually of sudden,often abrupt,onset. When prodromata occur,they are such as have been described as preceding the maniacal form - e. g., mental irritability, headache,precordial distress,etc. The phenomena consist not in ordinary convulsions,but in convulsive movements of remarkable disorder,only to be compared with the extraordinary convulsive movements of grave hysteria. The patient throws himself to the ground,giving himself up to the most irregular and disorderly contortions, rolling from side to side,throwing his body into the

air,striking out with his arms and legs,kicking at random,and biting at persons and things - now knocking his head against the floor,again rising for a moment,only to fall back and recommence the same contortions. The movements are energetic and violent.There are,it is true,madmen whom it is dangerous to approach by reason of the violence of their movements,but they are certainly less dangerous than those suffering from the maniacal form of acute alcoholism:for their morbid motility has no tendency to take the shape of co-ordinated actions.It is movement wasted in pure loss. Their muscular energy is excessive;it is difficult to restrain them.The fact that the movements are purely convulsive and automatic,rather than intentional,constitutes their peculiarity.One of the most characteristic of the phenomena of acute alcoholism in its convulsive form is the state of mental enfeeblement which accompanies it;the remaining symptoms differ but little from the maniacal form.The loss of consciousness is complete;he has not the slightest knowledge of himself; only an occasional harsh cry or inarticulate sound indicates the existence of the mind;there is not even delirium to denote mental activity.But for the movement produced by the convulsions,the patient would be plunged into a condition of profound coma.When the patient wakes up,he does not remember at all what he has passed through in the interim of a few hours or half a day - the usual duration of an attack.His return to consciousness is usually abrupt - after a condition of extreme exhaustion with stupour,or of a deep and prolonged sleep preceding this event.

III. ACUTE ALCOHOLISM IN THE SUBJECTS OF NERVOUS DISEASES.

It is matter of common observance in practice to find that persons subject to nervous disorders - such as the insane,imbeciles,and the epileptic - are peculiarly susceptible to the action of alcohol,which in such gives rise to symptoms out of the ordinary.With very few exceptions,persons of unsound mind are so susceptible to the influence of this intoxicant,and suffer so promptly and intensely from its primary effects,that to consume a sufficient quantity to induce coma is rarely possible or allowed.A common early symptom in sufferers from general paralysis is a propensity to alcoholic excesses.The subject is very susceptible to the action of alcohol,and under its influence rapidly passes into a state of intense excitement,characterized by incoherence,delirium,excessive restlessness,and unwillingness to seek repose until exhaustion is complete.It is during the first stage of this form of insanity, under the influence of this easily-provoked alcoholic excitement,that one hears of the commission of various crimes.Alcohol may excite,just as quickly,imbeciles and idiots,who under its influence may exhibit tendencies that are not suspected before.They may then perpetrate dreadful crimes,or be quarrelsome,perverse,ungovernable, and defient of authority.During the stage of excitement epileptics may be easily affected by alcohol,and to the extent of actual violence;or a true epileptic crisis may be induced instead.In the case of the confirmed drunkard the attack is characterized by a prolonged,

uninterrupted stage of excitement without a stage of depression.The ordinary successive phenomena of acute alcoholism may not follow very large amounts of alcohol consumed by such persons,so seasoned are they against the influence of this intoxicant.

PATHOGENESIS.

To attempt to explain the irregular forms of acute alcoholism, in any given case, by the quality of the alcohol by which they are induced meets with the difficulty indicated in the fact that they are isolated and comparatively rare, even when the coarser spirits are habitually consumed. They occur in individuals who habitually commit excesses, but they cannot be viewed as manifestations of chronic alcoholism, for the reason that they occasionally occur in those who are not habitual drunkards, and even in persons who have not for a long time previously tasted any kind of alcoholic beverage. They are then the manifestations of idiosyncrasy, and only to be explained by the inherited or acquired constitutional peculiarities of individuals. One of the striking peculiarities of thix peculiar bodily organisation is this very susceptibility to the action of alcohol in doses smaller than are taken with impunity by ordinary individuals. It is characterized by a special tendency to delirium in febrile states, to hallucinations, to disturbances from trifling changes in climate, food, or manner of life, to irritability of the nervous system, and in particular of the vaso-motor system, and by a tendency to convulsions. With these tendencies is associated an unstable mental and moral character. Furthermore, the family histories of such persons indicate strong hereditary tendencies to neurotic disorders, and not rarely addiction to alcohol on the part of one or more of the ancestors. The subjects themselves are liable to headaches, vertigo, and nose-bleed - signs of cerebral hyperaemia, which is readily induced. Still, it is by no means always that this idiosyncrasy is an inherited one. Such conditions of profound disturbance of the nervous system as may result from moral influences, temporary or recurrent insanity, wounds or injuries of the head, and infectious diseases - especially syphilis, enteric fever, and typhoid fever, as well as smallpox and meningitis - may give rise to it. There is still some uncertainty existing regarding the precise mode of action of alcohol in the production of its acute effects. It cannot be doubted that its primary and direct action is upon the nervous system, and that the circulation is secondarily, but rapidly, implicated. Nevertheless, in the present state of our knowledge, it is quite impossible to say what this action is. It has been suggested that certain chemical modifications of alcohol in the blood, or of the blood itself in the presence of alcohol, cause these phenomena; that aldehyde is the chief agent in their production; that the chemical changes by which alcohol is transformed into aldehydes, acetic acid, and finally into carbon dioxide, deprive the blood of the oxygen necessary for the proper performance of the functions of the nervous system. It is, however, unfortunate for these views that neither the presence

of aldehydes in the blood in acute alcoholism, nor these transformations themselves, have been demonstrated with certainty; and a high degree of deoxygenation of the blood is frequently observed in asphyxia, the inhalation of nitrous oxide gas, etc., without the occurrence of the characteristic symptoms already described. That varying conditions of the cerebral circulation, secondary in themselves, have a great deal to do with the causation of cerebral symptoms is more probable. Numerous experimenters have shown that during the period of excitement there is an actual congestion of the meninges: this, after a time or if the dose of alcohol be at first excessive, is followed by amaemia. This condition is of a transient character, but can be excited whenever the dose is repeated.

M O R B I D A N A T O M Y.

Deep congestion of the meninges of the brain, and especially of the pia mater, has been almost constantly observed at the post-mortem examinations of individuals who have died by accident while drunk, or in consequence of drunkenness itself. To find haemorrhagic effusions of blood into the pia mater is a very common experience. The cerebral substance is usually more or less congested; sometimes it is actually anaemic, and in other cases it appears to be quite normal: at most the pathological anatomy admits of variable findings. Dark blood distends the sinuses and choroid plexuses; the cerebro-spinal fluid is increased, and often tinged with blood; the ventricles are distended with fluid, which often has an alcoholic odour. In certain cases there may be haemorrhagic effusions into the ventricles and substance of the brain. An oedematous condition of the tissues of the tissue of the lungs is often observed, as well as congestion with small haemorrhages in the parenchyma, as also congestion of the spleen, liver, and kidneys - in varying degrees of intensity. The mucous membrane of the stomach is invariably deeply injected, when the alcohol has been taken through the mouth. The pancreas is usually deeply injected, and occasionally the seat of haemorrhagic extravasations. Certain pathological conditions are observed at the autopsies of drunkards that are neither constant nor characteristic. The stomach usually contains partially digested food and alcohol. Various observers have seen, both during life and after death, in the blood of animals subjected to experimentation, great numbers of minute glistening points, which upon microscopical examination are proved to be globules of fat. The same condition has been observed in man, not only when death has taken place from acute alcoholism, but also when it has occurred during the digestion of a hearty meal without alcohol. The blood itself is often fluid and dark-coloured; the heart sometimes empty, sometimes containing a few soft clots. Tardieu (Observations médicales sur l'Etat d'Ivresse, Annales d'Hyg. publique et de Méd. légale, t.xl) affirms that in sudden death during drunkenness pulmonary apoplexy and meningeal apoplexy, if not constant lesions, are at least extremely frequent, indeed, almost characteristic.

ACUTE ALCOHOLIC POISONING.

The symptoms of acute poisoning by alcohol in lethal doses are both various and complex. In order to facilitate the study of these, I shall divide the subject as follows:

I. Corrosive Poisoning.
II. Narcotic Poisoning.

I. Corrosive Poisoning.- Fortunately, it is only seldom that one has to deal with a case of poisoning by alcohol of a corrosive kind. Such cases are caused only when the alcohol is given in undiluted form, and depend upon the action of this agent in coagulating albumin and disorganizing the tissues with which it comes in contact by the affinity for the water which they contain. For absolute alcohol is a powerful corrosive poison, producing intense phlegmonous inflammation of the oesophagus and stomach, with erosion of the mucous membrane, accompanied by vomiting, diarrhoea with bloody stools, prostration, and stupour. Heart occurs by heart-failure. Acute and subacute gastritis, with characteristic symptoms, are among the direct effects of large doses somewhat less concentrated. By means of an oesophageal tube, Percy (An Experimental Inquiry concerning the Presence of Alcohol in the Ventricles of the Brain after Poisoning by that Liquid, together with Experiments Illustrative of the Physiological Effects of Alcohol, London, 1839) injected ninety grammes of absolute alcohol into the stomach of a dog. Death followed in the course of eight hours, in consequence of violent gastro-intestinal inflammation with ulceration. Dujardin-Beaumetx and Andigie (loc.cit.) found the gastric and intestinal mucous membrane of dogs poisoned with alcohol red, deeply injected, and "presenting at certain points a black coloration due to effused blood." This fact they regard as noteworthy, because in their experiments the toxic agent was introduced, not by the mouth, but hypodermically; and they explain it by the supposition - which appears to be warrantable - that it is due to elimination by the mucous glands. Hence the congestion, softening, and haemorrhage. The fact that the symptoms were more acute, and the lesions more marked, when poisoning was caused by propyl, butyl, and amyl alcohol than when its was produced by ethyl alcohol was noted by these experimenters. Chatin and Gublier (Bull. de l'Acad. de Méd., Séance du 6 Novembre, 1877) have emphasized the fact that certain poisons, introduced by intravenous injection or by absorption through the respiratory tract, are eliminated by the intestines, with the production of the same local symptoms as when orally administered.

II. Acute Narcotic Poisoning.- This division includes the more common class of cases in which death is rapidly produced by excessive doses of ordinary diluted alcohol, taken at once or speedily repeated. This happens under various circumstances, as when a drunkard

avails himself of some favourable opportunity to gratify to the full a bestial appetite, or upon a wager drinks a number of glasses of spirits in quick succession or a given quantity down, or when a man already drunk is plied by his companions for pure mischief's sake. Suicide by this means is, in the ordinary sense of the term, rare, and murder still more so. The latter crime has, as a rule, been committed upon infants and children. Blyth (Poisons, their Effects and Detection) estimates the fatal dose of absolute alcohol, diluted in the form of ordinary whisky, gin, etc., at from one to two fluid ounces for a child below the age of ten or twelve years, and at from two and a half to five ounces for an adult. In the instance recorded by Maschka (Cited by Blyth - loc.cit.) two children, aged respectively nine and eight years, took, partly by persuasion and afterwards by force, about one-eighth of a pint of spirits sixty-seven per cent. strength - about 1.7 ounces of absolute alcohol. Both vomited somewhat, then lay down, breathing stertorously, to die in a very short time. In these cases the symptoms are are of a uniform character. There is generally no stage of excitement observed, but from the very beginning the signs of profound general depression of all the vital functions are present. As already stated, most of the criminal cases of alcoholic poisoning will be found to come under this category; many cases are recorded in the literature where children of a few months old, up to the age of about eight, have been purposely killed in this way. There are also many analogous cases in grown-up people, who, for the purpose of the bestial gratification of appetite, have gone on imbibing strong spirits till they sank insensible to the ground. It is usual to find the person thus poisoned in a state of deep coma and unconsciousness, with various degrees of general anaesthesia, with deep stertorous respiration, small, rapid, and easily compressible pulse, and, as a rule, dilated pupils insensible to light. The skin of the face is generally reddened and bloated-looking, but sometimes cyanotic; the skin of the trunk and of the extremities is cool and covered with clammy sweat. The mucous membrane of the mouth and throat may show similar changes as in mild cases of poisoning by acids - especially a whitish coloration of the swollen and spongy epithelium. Vomiting, though often noted, is by no means a constant symptom. Many of the recorded cases mention the passage of thin, slimy stools, mixed with blood. We have seen that in very young children this sort of poisoning may terminate in death in a very few hours - it is, however, not rare to find this preceded by general, or sometimes purely local, convulsions. The older the children are, the more likely is it that remedial measures will avert death. The symptoms in grown-up people are strictly analogous. Here, too, it is usual to find the patient in a condition of the deepest stupour; and in many of the recorded cases it is expressly stated that the patient fell down insensible whilst drinking. Consciousness is generally entirely abolished, and it is the same with sensation. The skin is cool, and the face and mucous membranes quite cyanotic. If these dead-drunk people remain long on the ground in this

condition,acute gangrene is sometimes seen on those parts of the skin most exposed to pressure.The epidermis is at first raised in blisters,which are filled with blood-stained serum,just as in burns;and the case may go on to the formation of a line of demarcation,and actual dropping off of parts of the body.As in phlegmonous erysipelas,the surrounding surface is highly oedematous,swollen,and red.A case of this kind is related by Mitscherlich (Virchow's Arch.,Bd.xxxviii,1867). The man fell down,and lay thirty hours with his left arm under him.The hand became gangrenous,and there was great swelling,redness,and oedema of the left arm.Furthermore, in these cases the breathing is deep,stertorous,and intermittent;the pulse is small,and scarcely to be felt. The extremities are of marble coldness,and the temperature of the whole body is lowered.In the most severe cases of this kind the pupil is dilated,and does not respond to light.The pupil is contracted to the size of a pin's point in less severe cases - especially when some traces of consciousness are present still.Such a case is described by Burkitt (Dubl.Med.Press,1839),in which the previously contracted pupils dilated for a moment whenever attempts to speak were made by the unconscious patient.Livid spots of effused blood are commonly found on both the eyelids and conjunctivae.The eyeballs are sometimes very prominent and staring - sometimes deeply sunk in the orbits.Local symptoms of any disorder of the digestive organs are not usually much marked at first during the comatose condition,and begin to appear at a later stage,if the case has not ended fatally before that.In the mouth,except for a very strong smell of alcohol and a fissured and dry red tongue covered with a thick fur or scab,there is nothing very remarkable to be seen.Vomiting of blood,a and stools containing blood,have been noted in a few instances.Sometimes the stage of complete coma alternates with either furious or frisky delirium;and not infrequently one meets with convulsive movements of single groups of muscles,or extending over the whole of some region of the body,and even general clonic spasms. Great variety in the duration and in the course of these symptoms may be noticed - especially so as the treatment or attempts at recovery have been early,or have been delayed until a later period.Loss of consciousness and coma may last for several days,and may then terminate by the supervention of favourable symptoms,or may pass into a condition very similar to delirium tremens.If no efforts at recovery be made for a considerable time, death may occur very easily in the first stage,and in consequence of asphyxia and paresis of the heart. But death may also occur in later stages.In the cases which begin to improve,the patients become conscious after some time,and then complain of violent headache and general weakness,and they labour for a considerable time under the symptoms of more or less acute gastritis, which,in frequent retchings and vomiting,pain in the epigastrium,total loss of appetite,and other like symptoms,specially manifests itself.The lesions found after death are those of acute alcoholism,already

described.In certain cases an exceedingly prolonged and remarkable resistance to the putrefactive processes of the dead may be observed - e.g., delay of putrefaction for even thirty-six hours in very hot summer weather; but the very opposite has been noticed,namely, an exceedingly rapid development of decomposition.On those parts of the skin most subjected to pressure during life - the shoulders,nates,etc. -very large post-mortem stains or ecchymoses will be found;sometimes the epidermis is raised into blisters,or there may be even more or less advanced bed-sores.The mucous membrane of the digestive tract will sometimes have contents smelling plainly of alcohol,while at other times there will be no trace of an alcoholic odour.These mucous membranes will very seldom exhibit ulcers,sometimes ecchymoses, and not rarely redness and swelling.In a fatal case of alcoholic poisoning Pennetier (Thèse de Paris,1865) observed that ulcers were beginning to form in the lower part of the oesophagus and in the stomach.The odour of alcohol can nearly always be detected in the abdominal cavity.The same is affirmed of the cranial cavity,in which also serous exudations and great injection of the meninges are usually found ,but no other characteristic cerebral lesions.The mucous membrane of the respiratory tract exhibits a widely-spread and intense injection of blood-vessels;the lungs themselves are very often found in a state of oedema; still more frequently we discover in their posterior and inferior portions hypostases and hepatization.

CHRONIC ALCOHOLISM.

GENERAL COURSE.

In dealing with the study of such a vast subject as chronic alcoholism, the difficulty is encountered at the very outset of being able to describe within a moderate compass its varied forms. It is without exception the consequence of long-continued and continuous abuse of alcoholic beverages, through which the body is gradually and systematically accustomed to larger and larger quantities of the poison; and the whole system, down to its very foundations, is shattered and shaken. Those who belong to this category are very seldom seen in a state of actual drunkenness in the later periods of their wasted lives: in fact at those periods which concern us most. Their follow their businesses or professions, or exercise their trades with a constantly or rapidly diminishing remnant of their physical and moral powers, and only by constantly increasing doses of alcohol are they able to sustain their tottering vitality. It is a common experience to observe that these habitual sots are attacked by, and succomb to, diseases of a casual kind, which present no symptoms characteristic of chronic alcoholism. With these, of course, we are not directly concerned. Still, symptoms which cannot be clearly identified with any known and recognized diseases are sometimes noticed in other habitual drunkards. Mention must be made, in the first place, of a number of psychical disorders, which are - paradoxical as it seems - specially characterized by their want of character or of individuality - as it were, a kind of so-called moral insanity. In such cases we do not know if the craving for drink, the alcoholic mania, be the original cause of the malady, or whether we must regard the craving itself as one of the symptoms; unless, indeed, we have watched the development of the disease from the beginning. Continual struggles with temptation, and continual yieldings to it, reduce the man who was, perhaps, at first a well-mening person, to a state of irreconcilable conflict and dissension with himself, with duty, and with the world around him. Although at first their intellectual powers are stronger than ever, such persons suffer severely from great anomalies of the passions and affections, and from a condition of deep melancholy, which is often associated with a tendency to suicide; and by a continual resort to their one remedy, of fresh indulgence in alcohol, they strive to rid themselves of their feelings. In course of time, however, their power of resistance gradually becomes weaker and weaker, whilst at the same time, step by step, their intellectual and physical powers grow more and more feeble. The man is now capable of committing crimes in order to satisfy the craving which is now his one ruling passion. In this category one often finds men of position and eminence: high-class men in every sense of the word. In exact

proportion to the original development of what we may call the higher ethics is the physical conflict increased,and is the completeness of the moral ruin. Sots of the lower orders do not fall so low,because they have never climbed so high.In the few moments when the subject of the vice is free to think,this very consciousness that he has ruined not only himself but his family,becomes itself a fresh factor in the generation of fresh mental disorders,and assists the action of the original agent of the mischief - the alcohol.The further course of cases of this kind is by no means uniform:very many,indeed,put an end to their own lives. The great majority die of intercurrent diseases,or are attacked by general paralysis,or some incurable form of insanity.Comparatively few are reclaimed in the long run.

ANALYSIS OF PHENOMENA AND LESIONS.

The morbid anatomy in cases of chronic alcoholism is almost as protean and inconstant as the forms under which the disease occurs.One may find the most varied degenerated conditions and atrophic lesions;and it is almost impossible to include them in this necessarily limited dissertation.There is, then,no such thing as chronic alcoholism restricted to any particular viscus or group of viscera,to the mind,or to the nervous system:no matter whatever may be the prominence of particular symptoms or groups of symptoms in any given case, all parts of the organism are involved.That which is specific is the evolution of a series of morbid changes, in the different structures of the body,under the influence of a common and continuously acting cause:the chronic hyperaemia,the fatty degeneration,and the sclerosis induced by alcoholic excesses differ in no respect from those conditions brought about by other causes.

Of all organs which are most commonly diseased in alcoholics,the affections of the digestive mucous membrane take the first place:such may be noticed long before the nervous system or the vascular system of the individual have suffered.Alcohol,insufficiently diluted, acts as an irritant to the mucous membrane of the mouth and throat;and the habitual repetition of this action causes subacute or chronic catarrhal inflammation. The condition of the tongue varies with that of the stomach. The mouth in acute alcoholism is apt to be pasty and foul,the tongue slightly swollen,and coated with a more or less thick yellow fur;there is often also an increase of saliva;in chronic alcoholism the tongue is usually small,sometimes red,sometimes pale,often smooth from atrophy of the papillae,not rarely fissured. In short,the condition of the organ is that seen in the various forms of subacute or chronic gastritis. The salivary secretion is often notably diminished,the sense of taste impaired.Relaxation of the throat and uvula,and general pharyngitis are common;those who, whilst leading a sedentary life,are inclined to the pleasures of the table,as well as a free indulgence in alcoholic drinks,often suffer from these affections.

Sir M. Mackenzie(Diseases of the Pharynx,Larynx,and Trachea,London,1880) states that the worst cases of chronic catarrh of the throat generally arise from the habitual abuse of the stronger forms of alcohol.One must not,however,disregard the associated influence of tobacco in the causation of this group of affections. Oesophageal ulceration amd stricture have also been observed.

The stomach suffers in chronic alcoholism to a serious degree.Functional dyspepsia is scarcely absent; but,in addition to it,all forms of gastritis,from simple erythematous inflammation of the mucous membrane to sclerosis and suppurative inflammation of the stomach, are encountered.To the habit of spirit-drinking - especially the custom of taking alcohol undiluted on an empty stomach - may be assigned a high place amongst the causes of indigestion.This habit is a prominent factor in the production of chronic gastric catarrh - a condition very frequently present in dyspepsia.Exclusive of acid or corrosive poisons,the excessive use of alcohol may be regarded as the most frequent among the direct exciting causes of gastric inflammation in this country.Next to the errors in diet may be placed the immoderate use of alcohol - especially by persons whose general health and digestive powers are below a healthy standard.The primary lesions are vascular dilatation and hyperaemia.The mucous membrane is discoloured,red, or bluish,in scattered patches of varying size,with occasional ecchymoses of a bluish hue,or spots of pigmentation.These patches occupy most commonly the region of the cardiac end,and of the lesser curvature of the stomach.Vascular injection is conspicuous;the veins are dilated and tortuous;the mucous glands hypertrophied; and the surface covered with a thick,ropy,and acid-smelling mucus.After a time permanent changes in the mucous membrane are set up.It undergoes atrophy or softening;or,again,it becomes hardened,thickened,and contracted,its rugae more prominent,and its surface mammilated - sclerosis.Grayish-brown pigmentation,the remains of former blood-extravasations,is seen at many points.In consequence of prolonged gastritis,the submucous connective tissue and the muscular coat occasionally undergo local hypertrophy.Minute retention cysts are formed in consequence of the occlusion of the ducts of certain glands.It is very rare to find in drunkards - resulting from the violent irritation of large doses of strong alcohol in subjects debilitated by previous excesses - acute suppuration of the stomach,with purulent infiltration of,or the formations of abscesses in,the submucous tissue.It,however,is a very common thing to find gastric ulcer in the bodies of persons chronically alcoholic;the majority of writers regard the abuse of alcohol as the indirect cause of this lesion.In the present state of our knowledge this agent, as usually taken,can scarcely be regarded as the direct cause of ulceration.Still,ulceration of the stomach is relatively common in chronic drunkards,as is affirmed by numerous authorities.The ulcers are usually superficial,occupy by preference the neighbourhood of the cardiac end and the lesser curvature,and are apt to be multiple:in which characteristics they differ from simple gastric ulcer,- which latter,again,is very commonly observed at the autopsies of drunkards.Persons

of the latter class seldom suffer from carcinoma ventriculi; and the former view that alcohol was an important cause of cancer of the stomach has been since proved to be without foundation in fact. The continued abuse of alcohol also produces alteration in the shape of the stomach. Dilatation is usually present in the early stages, and in beer-drinkers throughout. The organ undergoes more or less contraction - irregular in many cases - in the advanced course of alcoholism due to spirit-drinking, in consequence of changes secondary to prolonged gastritis. The subjects of chronic alcoholism usually suffer from dyspepsia; the appetite is variable, irregular, and at length wholly lost. There is especially distaste for food in the morning. This, together with the disordered state of the secretions of the mouth and a feeling of nervous depression on rising, leads to the disastrous habit of taking spirits early in the day. Gastric digestion is performed with difficulty; it is accompanied by sensations of distension and weight, and by flatulence and acid eructations. Heartburn is a common symptom. The drunkard is often tormented with an uneasy craving or sense of emptiness in the region of the stomach, which he temporarily allays by nips at odd times, together with morsels of food that is perhaps highly seasoned, - with the result of still further damage to his digestion, and the complete loss of appetite for wholesome food at regular hours. In the course of time, the characteristic morning sickness of drunkards is established. On arising there is nausea, accompanied by vomiting - sometimes without effort or pain, at others attended by distressing retching and gagging. The matter vomited consists usually of viscid mucus, at first transparent, then flaky, and at length, of the efforts be violent, of a green or yellow colour from the admixture of bile. These symptoms ordinarily do not recur until the following day. In other cases vomiting is more frequent, recurring at irregular periods during the day, and not uncommonly an hour or two after meals. When gastric ulcer is present, portions of the vomited matter are often gummous like coffee-grounds or the settlings of beef-tea, and are found on microscopical examination to contain blood-corpuscles. Under these circumstances actual haematemesis may occur, and be repeated from time to time. Sometimes the quantity of blood thrown up is so great as to occasion the death of the patient: it is usually, however, very small, though at times it may be excessive to the verge of fatality. In spite of the great frequency of gastric disturbances, it is only in the later stages of the vice that they are apt to assume a serious character.

Chronic alcoholism very rarely gives rise to anatomical alterations in the small intestines. Inflammatory conditions of the stomach, even when located at, or extending to, the pylorus, rarely pass any great distance into the intestine. The large intestine is, on the contrary, frequently the seat of chronic inflammatory processes. Here we may find vascular engorgement, patches of pigmentation, localized thickening of the mucous and submucous tissues, enlargement of the solitary glands, and an excessive secretion of viscid mucus. The tendency to permanent vascular dilatation, which is a characteristic result of alcoholism, constitutes a powerful predisposing influence in the causation of haeorrhoids, which are common. Alcohol acts directly upon the haemorrhoidal

plexus of veins,and indirectly by causing permanent congestions,of more or less intensity,in the greater number of the abdominal viscera.Portal obstruction is an important factor in their causation.As a rule,at the commencement of such troubles of drunkards the symptoms of intestinal derangement are slight and occasional. They consist of uneasy sensations or colicky pains in the abdomen,a feeling of fulness,with or without tympany, and constipation alternating with diarrhoea:in short, they are the symptoms of acute or subacute intestinal indigestion terminating in an attack of intestinal catarrh.Attacks of this kind repeat themselves in a considerable proportion of the cases with variable,but increasing,frequency,until at length the conditions of which they are the expression become permanent,and the patient suffers among other distressing symptoms hereafter to be described,from chronic diarrhoea.The stools are now of the most variable character - occasionally bilious,sometimes containing small dark scybalous masses,rarely formed,but usually containing more or less abnormal mucus,too much fluid,and traces of blood. At this stage,indeed,several causes conspire to determine blood towards the interior of the intestinal canal; and among these may be mentioned visceral congestions, local inflammatory conditions of the intestinal mucous membrane,dilatation of the haemorrhoidal veins,and structural changes in the liver.Traces of blood in the stools are therefore frequent,and actual haemorrhage, and the appearance of dark,tarry,and altered blood are by no means rare.Colliquative diarrhoea and dysenteric attacks also occur,and at length an intense enteritis, with uncontrollable diarrhoea,may terminate the life of the patient.Such subjects develop a well-marked alcoholic cachexia,and rapidly emaciate.

Lancereaux (Dictionnaire de Médicine,Art."Alcoholism") reports havinf seen the salivary glands in a state of softening,with granulo-fatty changes in their epithelium.Such changes might account for the dryness of the mouth from which drunkards so often suffer,due to alteration in the composition of the saliva. A general and chronic interstitial pancreatitis may result from excessive alcoholism (drunkards' pancreas). It belongs to the same category as chronic interstitial inflammation and cirrhosis of the liver and kidneys,so frequently met with under the same etiological influences;and these changes may attain such a degree as to warrant us to speak of cirrhosis,or of granular disease of the pancreas.Some of the other glandular affections of chronic alcoholism - as the enlargement of the solitary glands of the large intestine - have already been referred to;and it may here be noted that the solitary glands and Peyer's patches of the small intestine undergo little or no change in this condition.

The diseases of the liver induced by continued excesses in alcohol rank next in order to those of the stomach.They are both of very frequent occurrence,and of a serious character.It must not be forgotten,however, that,in a small proportion of cases of chronic alcoholism terminating fatally with widespread eveidences of the destructive action of alcohol upon other organs of

the body, the liver has been found, both in its macroscopical and microscopical appearances, wholly normal. After being absorbed by the vessels of the stomach, alcohol passes directly, by way of the portal vein, into the parenchyma of the liver, there giving rise to various disturbances, the nature of which is determined by the tendencies of the individuals, on the one hand, and by the character of the alcohol consumed, on the other hand. The danger of hepatic disease is in direct proportion to the amount and concentration of the alcohol habitually taken; but it must be borne in mind that the presence of food in the stomach to some degree retards the absorption of the alcohol ingested, and constitutes a means of dilution to a certain extent. The steady drinkers of spirits - of whatever kind, whether gin, grandy, whisky, or rum - present the largest proportion of diseases of the liver. These affections are far less common amongst beer-drinkers, and infrequent amongst wine-drinkers in the countries where grapes are grown for the purpose of the manufacture of wine. It is convenient to describe the alcoholic affection of the liver as coming under two main categories - viz., congestion and inflammation, and fatty infiltration: remembering that that the inflammatory process may affect chiefly the glandular substance, on the one hand, constituting a true parenchymatous inflammation, or, on the other hand, may give rise to sclerosis, by implicating the interstitial connective tissue. Disorders of the liver of a congestive nature are of early occurrence in chronic alcoholism. Hepatic congestion is brought about by the direct action of the alcohol in part itself, and in part by the extension of inflammation from the stomach by continuous mucous tracts. Its development is insidious. Anatomically, the condition is characterized by vascular dilatation, moderate tumefaction, slight increase in the consistency of the organ; the surface is of a deeper red than normal; on section, the colour is more intense and the oozing more abundant. We have, at a later period and as the result of chronic congestion, the cyanotic liver. The colour is brownish or violet, mottled, and on section the surface is granular and the lobules distinct. The liver may now be somewhat diminished in size, but it lacks the firmness of sclerosis, and the hobnail appearance of that condition which the contraction of the connective tissue between the lobules produces. Hepatic congestion gives rise to the usual symptoms - such as gastro-hepatic catarrh, varying from the transient disturbance known as biliousness to serious sickness, characterized by acute gastro-intestinal phenomena, with vomiting, headache, and other derangements of the nervous system - e.g., constipation succeeded by diarrhoea, and by more or less distinct icterus. The more grave forms of congestion of the liver are characterized by intense nausea, frequent vomiting, pain and soreness in the epigastrium and right hypochondrium, the physical signs of enlargement of the liver, and well-marked yellow discoloration of the skin and conjunctivae. These attacks are usually unaccompanied by a rise in the temperature of the body; the pulse is slow; there is considerable nervous and mental depression, a tendency to vertigo, and occasional syncope. Muscular tremor -

especially marked in the extremities and in the tongue - is often present:it is not due to the direct action of alcohol on the liver,but to its effect upon the nervous system.The urine is scanty and high-coloured,and presents the ordinary reaction of bile-pigment.Hepatitis, as induced by alcohol,occurs in two principal forms - the parenchymatous and the interstitial.The former admits of several varieties,the natomical estimation of which is attended with less difficulty than their clinical recognition as such.One of the most serious is diffused parenchymatous hepatitis,or acute yellow atrophy.Alcoholic excesses seem to constitute a predisposing influence to this disorder.Frequently prolonged and repeated excesses have preceded its development. The liver is diminished in volume in all its diameters. It is of a uniform yellow colour;its tissue is soft and friable;upon section,the hepatic cells are found to be replaced by a granular detritus mingled with a grayish-yellow exudation and globules of colouring matter. It is,therefore,a true parenchymatous inflammation, in which the glandular elements of the organ undergo disintegration.So close is the resemblance between acute yellow atrophy of the liver and the symptoms of acute phosphorus poisoning,that the two conditions are considered to be identical by many obseerwers.The symptoms of this disease are those of acute parenchymatous inflammation of the liver of the gravest kind.In the early stages there is intense jaundice,gastro-intestinal disturbance,and fever - followed by speedy evidences of profound toxaemia.The patient rapidly falls into the so-called typhoid state,with a tendency to coma.In the greater number of cases the patient dies,and the prognosis is,therefore,of the most unfavourable kind.Acute yellow atrophy is,fortunately,a very rare disease; alcoholic excesses are usually regarded merely in the light of a predisposing influence,- for there is very little doubt that the view,now generally held,that the condition in question is due to some toxic principle, is correct.In this country suppurative hepatitis is not common.Chronic jaundice usually accompanies it.In tropical countries,however,abscess of the liver is frequently ascribed to improper alcoholic indulgence - especially when combined with the eating of large quantities of unwholesome food.Chronic interstitial hepatitis with atrophy is one of the forms of inflammation of the liver that has been described.The symptoms are,for the most part,not well defined,and consist chiefly in general malnutrition and jaundice of long continuance.The former may depend upon the associated dyspepsia.Excess in alcohol is,in a large proportion of the cases,the direct cause of interstitial hepatitis or cirrhosis of the liver.Still,it is by no means the sole cause.Indeed,Formad (Proc.Path.Soc.Philadel.,Dec., 1885) states,as the results of his investigations as coroner of the city of Philadelphia,that cirrhosis of the liver is much less common in alcoholic subjects than has been generally supposed;and with this opinion my own experience is in accord.Anstie (Reynolds's Syst.of Med.,1868,Vol.ii,p.74) affirms that in view of the "enormous quantities of spirituous liquors which

are drunk by many of the patients who apply for relief from the consequences of chronic alcoholism, it would be natural for the reader who holds the usual opinion as to the origin of cirrhosis to expect that serious symptoms produced by the latter disorder must often complicate casesmof the former. The case is, however, far otherwise in my experience. Of the immense number of patients in whom the nervous disorder has been clearly identified, I have only seen thirteen cases in which the symptoms of cirrhotic disease called for any special treatment, although a certain degree of cirrhosis was doubtless present in many of the others; and I cannot avoid the conclusion that some very powerful element over and above the influence of alcoholic excess is needed to produce the severe type of that disease". The morbid appearances of chronic interstitial hepatitis are those of hyperplasia and hypertrophy of the connective tissue of the organ, the glandular elements being atrophied in proportion to this. The progress of the disease is insidious and gradual; some degree of enlargement, due in part to congestion and in part to interstitial exudation, is followed by gradual diminution, with retraction of the new connective tissue. When the new formation of connective tissue is excessive and the retraction fails to take place, the organ remains permanently enlarged - hypertrophic cirrhosis. During the first period the volume of the organ is increased, its consistence is more firm, and its surface is slightly granular. The second period is characterized by induration, with diminution in volume of the organ, and alteration of its form. The surface is uneven, deeply granular, and usually of a mottled-yellow colour. The tissue is firm, creaking under the stroke of the knife. At the same time the contracting connective tissue exerts a compressing influence upon the hepatic cells, as well as upon the vascular supply throughout the liver; the roots of the portal vein and the branches of the hepatic artery are alike compressed, and in part obliterated. The same is true of the bile-ducts. The symptoms, which are at first insignificant, become progressively more grave, until at length they constitute complications of the worst kind: the functional activity of the organ, at first diminished, is finally to a considerable extent arrested. I know of nothing specific in the characters of cirrhosis of the liver as produced by chronic alcoholism, though formerly a specificity was affirmed by certain writers upon the subject. Still, it differs in many respects from that form of interstitial hepatitis due to valvular disease of the heart, in which there are induration, usually augmentation in the volume of the organ, and persistent congestion. It is a fact that congestion is the chief characteristic of the latter form - which is called the cyanotic liver, in which the surface is smooth and glistening, of a deep-brown or or violet colour, and yellowish or brown on section. In the respect that the sclerotic changes due to alcohol usually affect the liver throughout its entire substance, alcoholic cirrhosis differs from syphilitic cirrhosis, which is characterized by irregularity in the distribution of the lesions. Cirrhosis of the liver cannot be

regarded otherwise than as a grave affection,as it always ends in death - after a course which is at first slow,and afterwards more rapid.At the outset the functional disturbances of the condition are obscure in themselves,and marked by the concomitant gastric disturbances.Later on,ascites constitutes the chief,as well as the most constant,symptom;and it is rarely absent altogether.Emaciation is also a prominent symptom.No affection - not even diabetes or phthisis - produces loss of flesh so rapidly,so markedly,and so significantly as cirrhosis of the liver in chronic alcoholism.When we consider that the lesions of the liver give rise to grave interference with every function of the body the fact is not surprising.Not only do the adipose tissues waste,but the muscles themselves undergo atrophy.In addition to the more common gastric symptoms,there is constipation,not rarely alternating, without assignable cause,with serous and sometimes bloody diarrhoea.Epigastric distress,epistaxis,and haemorrhages from other mucous surfaces are common,and are due in part to the disturbances of the general circulation,and in part to alterations in the character of the blood itself.The physical signs in the early stages point to an increase,afterwards to a diminution, in the size of the liver.A characteristic sign of the condition is enlargement of the superficial veins of the abdomen.In the advanced stages of chronic alcoholism fatty degeneration of the organ is very commonly encountered.The lesions consist in accumulations of fat-globules in the hepatic cells.French writers distinguish two varieties of steatosis of the liver: first, that in which the cellular elements undergo no change beyond that of an accumulation of fat-globules within their substance;and,second,that in which the hepatic cells undergo an actual disintegration,in the course of which fat-globules are formed,and which is,as a matter of fact,a true fatty degeneration.The first of these two conditions is not incompatible with the functional activity of the organ,and is in many instances unattended by symptoms,being only discovered at the post-mortem examination.Its occurrence is to be explained by the imperfect oxidation of waste products,due to the constant presence of alcohol in the blood,and by the habitual excess of fat in the latter fluid.When fatty infiltration is of moderate amount,there are no changes in the volume or in the contour of the organ,and the condition is recognizable only on microscopical examination. At a later stage the liver becomes enlarged,particularly in its antero-posterior diameter.The surface is now smooth and glistening,its colour yellow or reddish-yellow;upon section,it is anaemic,of a yellowish colour, with patches of a reddish hue,and its consistence is diminished.The normal characteristics are present in the bile which is secreted in this condition,at least nearly always.On pressing with the finger,the indentation of the hepatic substance remains.Under the microscope,the hepatic cells are enlarged,rounded,packed with fat-globules of varying size.In some of the cells these globules coalesce,and form more or less extensive drops of fat.The fatty change in the liver does not give rise to digestive disorders until the lesions has reached

an advanced stage;nevertheless,they constitute the earliest symptom of this condition.Imperfect digestion, accompanied by flatulence,distension of the abdomen, epigastric tenderness,light-coloured stools,and constipation alternating with diarrhoea are common symptoms. A peculiar earthy pallor of the complexion,and persistent greasiness of the skin - by themselves not at all characteristic - develop with the onset of jaundice. Such patients do not complain of pain over the region of the liver .Of a much more serious character,however, is the second form of fatty degeneration of the liver - viz., that in which the hepatic cells undergo actual and destructive metamorphosis,accompanied by the production of fat.The symptoms are like those seen in acute yellow atrophy,that is to say,nervous depression,coma, haemorrhages from mucous surfaces,serous effusions,and profound and rapidly developing anaemia.The condition may be regarded as the extreme stage of interstitial hepatitis.Some of the subjects of chronic alcoholism suffer from gall-stones.The bile-ducts are usually the seat of catarrhal inflammation,due less,perhaps,to the direct action of the alcohol than to gastro-duodenal catarrh - an extension of the gastritis.

The spleen presents no anatomical alterations that can be regarded as characteristic of the alcoholic condition under discussion.Usually it is larger than normal,soft,and friable;but in some cases it may appear to have undergone diminution in volume and shrivelling.

On examining the bodies of drunkards after death, one frequently finds eveidences of chronic peritonitis - manifested during life by obscure symptoms,consisting of diffused dull pain,augmented on pressure,diarrhoea, dyspepsia,and abdominal distension - sometimes voluminous,sometimes irregular.In the absence of other assignable cause,it can be attributed to the direct action of the alcohol itself.Fat may be found loading the great omentum and mesentery,very often to a high degree;and this is apt to be more marked in the chronic alcoholism of beer-drinkers than in that of spirit-drinkers.

No changes are met with in the respiratory organs that can be regarded as specially characteristic of chronic alcoholism.Still,lesions are by no means rare. Drunkards very often suffer from catarrhal inflammation of the air-passages.Some degree of subacute or chronic laryngitis is an early symptom of chronic alcoholism. The anatomical alterations of this condition are those of chronic laryngitis in general.The mucus secreted is often thick,opaque,adherent;there is hyperaemia of the mucous membrane with minute ecchymoses,and local destruction of the epithelium with superficial ulcerations or granulating surfaces.This complication may result from repeated attacks of acute alcoholism,or it may be among the first signs of excesses that are continuous,without at any one time being extreme.In the production of this local trouble the direct action of alcohol is reinforced by the foul and smoke-laden air of the tap-room,as well as by heedless exposure to the inclemencies of the weather outside.Some affections give rise to a peculiar hoarse and husky tone of voice. There is a fatiguing laryngeal cough,usually harsh and grating in character,and attended by a scanty mucopurulent expectoration.It is especially on getting out

of bed in the morning that this cough is apt to be most troublesome, when the vomiting already referred to is provoked by it. Sooner or later the bronchial tubes are implicated in the alcoholic complexus of symptoms. Subacute bronchitis is, little by little, transformed into the chronic form; and these local troubles, interfering with the circulation of blood, largely contribute to the production of the ultimate morbid state of the constutution, and react unfavourably upon the organism at large. The symptoms are those of hyperaemia and thickening of the mucous membrane, extending to the finer twigs, with submucous infiltration and implication of the connective-tissue framework of the lungs. The exudation, tough and adherent or fluid and copious, occasions more or less frequent cough, and interferes with the functions of resoiration. Hence it is common to encounter in the subjects of chronic alcoholism bronchiectasis, pseudo-hypertrophic emphysema, easily excited or permanent dyspnoea, asthmatic seizures, and some degree of cyanosis. Favoured by the action of alcohol upon the vasomotor system, pulmonary congestion and oedema are very common and readily excited by the careless habits and frequent exposures of the drunkard. The lesions occupy by preference the lower and posterior part of the lungs, and consist in relaxation of the parenchyma, with vascular dilatation and serous infiltration. The vesicles are capable of distension, but contain little air. The tissue is friable, deep-red or brownish in colour, and floats upon water. Impaired percussion resonance, and mucous subcrepitant and occasionally a few scattered and crepitant râles, are the chief physical signs of this condition; the symptoms of which, again, are sometimes obscure - consisting of a sensation of constriction of the thorax, more or less dyspnoea, mucous expectoration, sometimes streaked with blood, and lividity of the tips of the fingers and of the face. Less often in chronic alcoholism than in the acute form of the vice do we encounter pulmonary apoplexy - which is occasioned by an extreme congestion leading to the escape of blood into the parenchyma of the lungs, with laceration of its substance. Chronic alcoholics seem to be specially predisposed to the occurrence of pneumonia as a complication - more so than any other class of the community. Some hold that alcohol is capable of acting as an efficient exciting cause. While it is indisputable that the action of this agent upon the pulmonary blood-vessels, and in favouring pulmonary congestion, constitutes a powerful predisposing cause, it cannot be admitted - regard being had to the fact that it is largely eliminated by the lungs - that alcohol can, in the absence of a specific cause, ever produce a specific acute febrile disease such as croupous pneumonia. The overlooking of the pneumonia in the delirium which it has induced is a common experience. Like that of aged persons, and that occurring in the convalescence from acute diseases, it is apt to be latent. The exudation is often of limited extent; the symptoms are insidious, and the striking clinical features of the ordinary frank form of the affection are sometimes altogether absent. There are no special peculiarities in the

morbid anatomy of the condition.When recovery occurs, the illness is very long and tedious.In most cases the prognosis is grave.Drunkards often suffer from the catarrhal form of pneumonia also:it presents no symptoms differing from the ordinary.Clinical and pathological observations do not bear out the view - which appears to be without foundation in fact - that alcohol,independently of,and in the absence of,other lesions,occasionally produces changes in the lungs analogous to the chronic interstitial inflammatory processes of cirrhosis of the liver,that is to say,fibroid phthisis.The pneumonia of the subjects of chronic alcoholism presents the striking peculiarity that there is a great contrast between the local and constitutional symptoms.The former are,in the vast majority of cases,insignificant and easily overlooked.Even the physical signs,when sought for,are often obscure and indeterminate:relative dulness, enfeebled or absent vesicular murmur,faint scattered crepitation masked by mucus râles,and a bronchial respiratory sound scarcely appreciable,are all that can be detected upon physical examination.In strong contrast to this almost negative picture is that of the constitutional disturbance,which is commonly of the gravest kind.The temperature-curve lacks the characteristics of ordinary pneumonia,and may show no rise;the prostration is extreme;there is delirium with tremor,restlessness, sleeplessness,mental irritation,with vomiting,and often complete inability to retain food.Much controversy has for long existed regarding the question as to whether or not chronic alcoholism exerts any influence in the production and evolution of pulmonary phthisis.That alcoholism is one of the greatest of the direct and indirect causes that prepare the field for the tubercle bacilli is now generally conceded - not only by physicians and sanatarians,but also by all sociologists who have studied the question.It is not only a phthisiogenetic disease par excellence in adult life,but,according to statistics carefully kept in some of the European hospitals for scrofulous children,in more than fifty per cent.of the cases either the father or the mother,or both,were found to be,or to have been,alcoholics.Evidences of old pleural adhesions are often found in drunkards,and effusions of serum may be found in their cavities.

Chronic drunkards very often suffer from diseases of the heart,but these are more often located in the muscle of the organ than in the valves.A common lesion is that of hypertrophy,which affects,as a rule,both sides of the heart - the left,however,more than the right - and is associated with some degree of dilatation. The part played by alcohol in the production of cardiac hypertrophy is a dual one:first,that of the constantly-repeated direct stimulation of the heart;second,that of the indirect stimulation to over-action causes by the necessity to overcome the obstacle which the lesions of the viscera interpose in the way of the circulation of the blood in the later periods of the disease.Nor are the lesions of the blood-vessels themselves - hereinafter to be described - without influence in producing the hypertrophic condition.The habitual consumption of beer

in excessive quantities leads to cardiac hypertrophy of characteristic form.Both sides of the heart participate in the overgrowth;there is an enormous increase in the volume of the primitive muscular elements,with enlargement of the nuclei.Whether or not actual numerical increase in the muscular fibres takes place is uncertain.This form of enlargement of the heart occurs in the absence of enlargements of the valves,disturbances of the pulmonary circulation,arterial sclerosis,atheroma,or granular kidneys.Some few cases of this so-called idiopathic hypertrophy are perhaps due to prolonged excessive bodily effort and bodily strength exerted to the extent of strain;but the greater number are only to be explained by habitual excesses in beer-drinking,as shown by the carefully worked-out histories of the patients.Neither fatty degeneration or myocarditis enters into the pathological process under consideration.The hypertrophy is due to the direct action of the alcohol consumed,to the enormous amount of fluid introduced into the body,and to the easily-assimilated nutritive elements of the beer itself.Furthermore,such habits are often associated with great bodily activity and a relatively luxurious mode of existence.Death is probably due to paralysis of the cardiac nerves and ganglia;and the disease is more common amongst men than women.At the necropsy of such patients - who die after brief illness with symptoms of heart-failure - are discovered moderate dropsy,congestion and brown induration of the lungs,congestion of the liver,spleen,kidneys, and other organs,and moderate serous effusions or general anasarca.The complication known as fibroid degeneration has been ascribed to a number of causes, among which long-continued excess in alcohol is certainly an important one.Some hold the opinion that in a certain proportion of cases this description,in which fibroid degeneration of the heart is associated with sclerotic mischief in the kidneys,the lesions of both organs are due to alcoholism.The effect of alcoholic fibrosis is to weaken the force of the heart's action, and to weaken the walls of the cavities at the affected parts in such a manner as to cause local bulgings or cardiac aneurysms.On the whole,alcoholic fibrosis differs in no essential respect from that due to other causes.The condition may escape recognition by the naked eye,if it be disseminated throughout the muscle; and the change consists in thickening of the perimysia around undivided fibres.The heart is larger than normal, perhaps a little paler,and its consistency a little more firm.When,as is commonly the case,the fibroid change is localized and masses of new tissue are developed around and in the muscular fibres,the heart assumes a streaked appearance,due to the contrast between the yellowish-white fibroid tissue and the brownish-red muscular structure.The microscope shows excessive development of fibrous tissue,with atrophy of muscular fibres.The diagnosis of cardiac fibrosis is invariably a matter of no little difficulty,and in many cases impossible,as the symptoms and physical signs are very obscure and indefinite.The association,however,of the following diagnostic data would be suggestive: first,feebleness of the systole and pulse,with augmentation of the frequency without irregularity;second,

moderate enlargement, varying within considerable limits; and, third, absence of murmurs in the greater number of cases. After investigation of the clinical histories of cases in which fibroid degeneration of the heart was found post-mortem, I am of the opinion that they may be grouped clinically as follows: first, cases in which there is no symptom of disease of the heart; second, cases of sudden death without previous heart symptoms; third, sudden death preceded by one or more anginal attacks; fourth, after cardiac insufficiency that has lasted for a few days; and, fifth, in cases of old-standing heart disease. The fact that death is apt to occur suddenly is worthy of special note. The condition known as fatty heart occurs in two distinct forms. Of these the first is fatty infiltration, which consists in an excessive development of the normal subpericardial fat, with a deposition of fat-cells, in considerable number, between the muscular fibres of the myocardium. This condition may exist to a certain extent without symptoms, but it is, however, apt to be manifested by a certain amount of cardiac dyspnoea, and inability to bear excessive strain or acute illness. In cases in which the fatty infiltration attains a high degree, inducing by meachanical pressure degenerative changes in the muscular substance of the heart, signs of embarrassment of the circulation will be observed. The diagnosis is often impossible, and usually difficult. The condition occurs usually in persons suffering from general obesity, and is particularly apt to occur in alcoholic obesity. Large masses of fat fill the grooves and furrows of the organ, the surface of which is covered with a thick layer of yellowish fat. The right heart is first and most affected, but in advanced cases the whole heart may be encased in a thick fatty layer. When the fat cells infiltrate the intermuscular spaces, they exert pressure, which may produce atrophy and degeneration of the muscular elements, Fatty degeneration constitutes the second form of fatty heart, and consists in changes in the muscular fibres by which the albuminoid constituents are broken up and replaced by microscopical particles of fat. After a time the transverse striae disappear, and the functional activity of the affected muscular fibres is completely lost. All conditions which interfere with the supply of oxygen to the muscular tissue, or which seriously derange its nutrition, are capable of producing fatty degeneration. Amongst these are alcoholic excesses. The colour of the heart is paler than normal, usually fawn or pale buff. It has been described as the faded-leaf colour. The consistency is softer than normal, the wall of the heart being in many instances broken down by the pressure of the finger. When this form of degeneration is due to disease of the coronary arteries, the lesion is usually localised - sometimes limited to the branch of the artery which is affected. Usually, however, the left ventricle is the part most likely to be affected, the papillary muscles being often altered to a marked degree. Next in order, the right ventricle is involved, then the left auricle, and finally the right auricle. The muscular fibres are seen under the microscope to contain, when affected, minute globules of fat, often of a uniform size, sometimes arranged in rows, but commonly distributed irregularly throughout the substance of the fibre. The transverse striae are indistinct,

and sometimes wholly absent.The functional activity of the affected fibres is seriously interfered with,or wholly lost;and,as a result,the force of the circulation is greatly weakened.These two forms of fatty change are occasionally associated.Some of the induced symptoms are due to cerebral anaemia.The memory is impaired, the patient becomes wayward and irritable,and is apt to become faint on suddenly changing from the recumbent to the erect posture;he is incapable of concentrated mental effort,or active bodily exertion,in most instances.Among the more common symptoms are shortness of breath upon exertion,with a dry hacking cough.In advanced cases the dyspnoea may be constant,and the Cheyne-Stokes respiration sometimes precedes a fatal termination.Chronic alcoholism does not directly produce valvular disease of the heart.One of the earliest and most persistent effects of alcohol is the dilatation of the capillaries.Partly to the result of the paralyzing action of this agent upon the vaso-motor system,and partly to the degenerative changes in the unstriped muscular fibres of the walls of the arteries,may be ascribed the visceral congestions which constitute so important a factor in the pathology of alcoholism. The occurrence of atheromatous degeneration of the arterial walls is also largely contributed to by alcoholic excesses.The indifect action of this agent in increasing the tension in the main trunks,and in leading to an irregular life - in which excitement,sudden and severe exertion,exposure to cold,and depressing influences of all kinds - contributes more to this result than the direct action of the drug itself.

The question of the action of alcohol upon the kidneys is of great interest,and one regarding which there is a considerable literature.I have already alluded to the diuretic action of this agent.It congests the renal organs in large doses;and Ollivier (Essai sur les Albuminuries produites par l'Elimination des Substances toxique,Paris,1863) vouches for its potency in producing,in large doses,acute transient albuminuria. The position of alcohol in the etiology of nephritis has led to much disputation in the past:many asserted that a large proportion of the cases were due to the abuse of this substance,even Bright himself;but,of late years,in consequence partly of the teachings of those who have given special study to the phenomena of alcoholism and renal diseases and partly of more precise methods of reasoning,the direct causative relation between chronic alcoholism and nephritic affections has come to be questioned.Nevertheless,many teachers of authority adhere to the former view.It is,however,more than probable that the action of alcohol is not of itself capable of producing these effects in the absence of other causes - among which are insufficient or improper diet,irregular living,damp dwelling-houses, occupations necessitating great or prolonged exposure to cold and wet,or such exposure from accidental causes,- circumstances to which those who,especially amongst the poorer classes,are addicted to drink are peculiarly liable.While alcohol cannot be regarded as the direct exciting cause of acute or chronic nephritis,as an influence predisposing to the development of these

affections,in persons otherwise liable to them,it certainly has an action.Nor must we overlook the influence of exposure to paludal poison,of lead,of heredity, in the causation of affections of the kidneys.Chronic congestion of the kidney is induced by the general state of visceral hyperaemia which alcohol causes and by its diuretic action.The organ is of a cyanotic dark violet hue,slightly enlarged,especially transversely,is firmer than normal,and when cut open bleeds freely.The subjects of chronic alcoholism very seldom suffer from acute parenchymatous nephritis.Alcoholic excesses,to which chronic parenchymatous nephritis is by many attributed, cannot be charged with being the cause of the latter condition.None of the cases treated by me occurred in drunkards,and in no instance have I encountered the large white kidney at the autopsies of notorious alcoholics.Drunkards do not often present the signs of the contracted kidney.Those suffering from delirium tremens sometimes show traces of albumin in the urine,which is not associated with structural renal alterations,and is of a transient nature.In chronic drunkards fatty infiltration of the kidneys may occur as part of the general fatty accumulation,and,as part of the general disturbances of nutrition,fatty degeneration.Alcohol cannot be held directly responsible for the amyloid degeneration which is occasionally observed.The urine of drunkards seldom contains sugar;only in rare instances has diabetes proper been seen as a complication of alcoholism.The latter often gives rise to vesical catarrh - especially if malt liquors are being consumed to excess. It is not a lesion characteristic of alcoholism,as it may be induced by other causes.

Regarding the action of alcohol upon the sexual system,it is generally agreed that this agent has an effect that is pernicious.This is partly to be explained by the influence of this substance upon the imagination,and especially upon the appetite,and partly by its debasing effect upon the moral sense and judgment, as well as indifference to the consequences of exposure which it begets.In the later stages of chronic alcoholism,sexual power is apt to be greatly enfeebled or wholly lost.This condition,which is usually attended also by loss of sexual desire,is to be attributed to the action of the alcohol upon the nervous system,rather than upon the genital organs themselves.Nevertheless,it has been established that long-continued alcoholic excesses are apt to be followed by atrophy of the testicles,or a condition in all respects resembling senile atrophy.Some,however,have ascribed the impotence of alcoholism to loss of the nervous tone.In the female subject atrophy of the ovaries may occur,or a liability to abortion;and such persons may exhibit symptoms of menstrual irregularities and premature menopause.

Fatty infiltration of the muscles at large,as in the case of the heart,may be induced by alcoholic excesses - giving rise to symptoms of difficulty in locomation and motion,and general feebleness.Such fatty infiltration is apt to be widespread.The muscles are paler than normal,softer in consistence,and streaked by fat.True fatty degeneration is less frequent,and apt to be localized.Here the muscular fibres lose their striation,and present deposits,in the form of granules,within the myolemma - the lesion being also accompanied by

enlargement of,and increase in,the contents of the medullary camal of the long bones,and athropathies of various kinds.

The occurrence of a variety of dermic lesions has been attributed to the long-continued abuse of alcoholic beverages,as reference to any of the larger works on dermatology will show.Alcohol,being largely eliminated by the skin,acts as a sudorific;but,as this effect is purely physiological,the moderate and occasional use of this agent produces effects that are favourable rather than otherwise to the tegmentary structures.In repeated excesses,however,it produces more or less irritation of the skin.The latter,partly for this reason and partly because it shares in the general disturbance of nutrition,becomes dry and harsh and scaly;after a time,the face - especially the foreface and neighbouring parts - assumes in many instances a violaceous hue,the minute superficial cutaneous veins are enlarged,and acne is commonly observed.The resulting appearance is almost characteristic of the individual.Alcoholic subjects frequently suffer from pruritus,urticaria,and eczema. In certain cases the skin,instead of being dry and harsh,is soft and unctuous,and in others - especially in the more advanced cases - it becomes slightly yellow or earthy in hue.Owing in part to changes in the nutrition,and in part to vascular dilatation,the skin of the extremities is not rarely mottled and cyanotic. Chronic alcoholism appears to predispose to gangrene of the skin,as well as to bed-sores;slight wounds readily inflame,and are slow to heal;alcoholic subjects are especially predisposed to erysipelas,whilst oedema of the lower limbs often reeults from enfeeblement of the circulation,and the lowered tone in the later stages of chronic alcoholism.In certain forms of alcoholism of the nervous system,and particularly in alcoholic paralysis,in which we have to do with a multiple neuritis, the skin of the affected parts - especially that lying over the affected muscles - becomes in consequence of trophic changes dusky in colour,hard,smooth,and glossy. It has been affirmed that chronic alcoholism is the cause of pellagra,and numerous observations have been advanced in support of this view.The excessive rarity of this condition in countries in which the abuse of alcohol is most common renders it probable that the occasional association of these affedtions is accidental rather than casual.

There are no changes occurring in the blood that can be considered characteristic of chronic alcoholism. It contains free fat,to which it owes its pale,opalescent,and sometimes almost milky hue.The injection of alcohol into the blood of animals will serve to demonstr-ate its presence.The proportion of water is increased, while that of fibrin is diminished.The red corpuscles are less numerous than normal;and after death the blood remains fluid.

Among the general disorders to which alcoholism can give rise,that of obesity is one of the most characteristic.The copious use of alcohol - and especially in a concentrated form - is a very frequent cause of corpulence.The favourable influence of the drug upon

fat-infiltration and fat-production reveals itself in the fact that,for the most part,it undergoes combustion in the body - thus absorbing oxygen in great quantities, and so hindering the combustion of the formed and stored-up fat.Dram-drinkers,for instance,while their digestion remains but little impaired,are recognizable by their considerable padding of fat,and their faces frequently have that well-known bloated look which is so repulsive.Wine-drinkers are similarly exposed to the danger of becoming corpulent,though in a less degree,- especially if they are fond of drinking strong wines or sweet kinds like champagne,or if what is lacking in concentration is made up for in quantity.Professional beer-drinkers,finally,almost always take their beloved beverage in such large doses that they not only consume in the long run a great deal of alcohol,but also a quantity of dextrine,etc.,- in short,an enormous amount of hydrocarbons,and thus afford their panniculus adiposus a double opportunity for storing up fat.Amongst our fashionable youth (academic or otherwise),for instance,accustomed as they are to beer-drinking jollifications,although their age is not such as favours the disease,ultimate corpulence is no infrequent phenomenon.The old and seasoned habitués of the bar are also known to furnish a remarkably strong contingent to the ranks of the obese - whether they assemble daily at their favourite resort for the love of beer,or for some other object which rejoices the heart of man.

Infectious diseases,as well as those of the organs of respiration,appear to attack by preference the subjects of alcoholism,who,again,furnish the earliest victims,as a rule,in epidemics:the whole organism suffers lowering of all its components and functions. Drunkards very often die of pneumonia;they develop troublesome delirium in simple maladies;and in all acute affections the prognosis is unfavourable,as compared with that of persons conspicuous for their sobriety.Besides unfavourably influencing the nutrition of the body in general,alcohol exerts a particularly undesirable action on the nervous system.This unfavourable influence is radical,and manifests itself from the beginning while the subject yet possesses the appearance of health,and long before the occurrence of either the symptoms or the physical signs of organic disease.The powers of resistance to unfavourable influences of all kinds are diminished;the ability to endure hardships, privations,and fatigue is lessened;sickness and injuries are badly borne;complications are frequent and grave;and convalescence is apt to be tardy and insecure. In course of time disorders of digestion,of haematosis, of circulation,increase the difficulty and render it more apparent.The fat now rapidly diminishes;anaemia, develops;the complexion becomes dull,earthy,or slightly jaundiced,and the tissues flabby.Then follow diarrhoea, haemorrhages from mucous surfaces,serous effusions, visceral congestions of a high degree,hypostasis,oedema, and progressive deterioration of all the powers of the body and mind,until the well-known alcoholic cachexia or dyscrasia is fully established.Finally,it is among the more striking peculiarities of the alcoholic subject that losses of blood are badly borne,and slowly repaired;it is this want of tone - often latent for a long time under ordinary circumstances - which unfits

those addicted to alcohol for Arctic or other exploring expeditions,as well as for scientific enterprises involving prolonged hardship and exposure.

The affections of the nervous system due to alcoholism are both numerous and varied.Even the bones of the skull do not escape:for they are apt to be thicker and denser than normal,this change implicating both the inner and outer tables of the cranial arches.The former is then deeply channelled for the blood-vessels,and deeply indented for the hypertrophied Pacchonian bodies. The brain of drunkards of long standing shows generally a shrinking of the mass of substance with narrow, flattened,and shrunken convolutions,which appear to be more clearly defined,while there is often serous effusion in the ventricles and in the subarachnoid space. From the degeneration of the vessels there is sometimes found blood which has oozed into the cerebral substance. There is a degeneration of the nerve cells and of the nerve fibres,with a similar atrophy of all the nerve centres,which are somewhat tough.The nerve cells are very frequently altered in shape and capacity by the great increase of the connective tissue.The neuroglian proliferation is a prominent feature.The dura mater is often found to be abnormally adherent to the cranium, the Pacchionian bodies enlarged,with opacity of the arachnoid,and thickening of the pia mater.On the surface of the dura mater there is sometimes neoplastic cellular exudation(vascular,and at times haemorrhagic) indicative of a pachymeningitis.The pia mater is generally opaque,thick,and coarse,adhering to the brain substance with degenerative patches.Arachnoidal haemorrhage,with excess of serum,is also encountered.In his "Text-Book of Mental Diseases",Bevan Lewis gives an excellent description of the pathological changes found in the brain and membranes.The vessels dipping into the cortex from the pia mater are enlarged,coarse,often tortuous, with their coats in advances atheromatous and fatty degeneration.The most prominent feature is the profusion of scavenger cells,pervading the upper or outermost region of the peripheral zone of the cortex lying immediately beneath the pia mater - their branching processes forming a dense matting,which converts the outermost fourth into a closely-felted substance of minute meshes.These scavenger cells are most numerous where a blood-vessel passes downwards through the cortical layers,dipping down into the second layermin aspect like the connective-tissue increase along Glisson's capsule in hepatic sclerosis.This matting is dense just underneath the pia.In the epicerebral space between the pia and the cortical surface amyloid bodies are seen.Congeroies of proliferating nuclei are seen here and there in the vascular walls,fibrous extensions from which penetrate the perivascular cortex,the vessels thereby presenting a spinous aspect.The deepest cortical layers are those specially affected,the upper above the fifth being sometimes not invaded.This morbid evolution is initiated in the vascular elements,in the long and straight cortical vessels.The motor area is that chiefly involved.In the lowest layer - the spindle-cell formation - scavenger cells suddenly present themselves.

Nuclear proliferations often conceal the spindle cells from view, the nerve elements being preyed upon by the scavengers. The vessels are the seat of atheromatous and fatty changes, the walls being covered with young spider cells. It is a matter of importance to distinguish the disorders due to the direct action of alcohol - which are often functional, or dependent upon lesions too subtle for recognition - from those which for the most part depend upon coarser changes of structure, and are secondary. Hyperaemia of the brain and its membranes not infrequently gives rise to a sense of dulness or confusion (increasing to headache, which may become almost intolerable), disorders of the special senses, disorders of motion and sensation, and mental distyrbances of the most varied character. The subjects of chronic alcoholism are specially liable to cerebral haemorrhage, in consequence of the lesions already described; and it manifests itself by the usual primary and secondary phenomena. Except in the advanced stages of paretic dementia, meningeal haemorrhage is rare, unless it be in the form of haematoma. In chronic alcoholic cachexia, the blood undergoes changes which favour the transudation through the walls of the vessels: hence a tendency to oedema and to accumulations in the serous sacs. This tendency implicates the structures of the nervous system in common with the organism at large. The ventricles of the brain become distended with fluid, and the substance of the brain itself, as well as the meninges, not rarely becomes oedematous in the last stage of chronic alcoholism - in consequence of the graver disturbances of the circulation, or as complications of affections of the lungs, heart, or kidneys. These conditions are manifested by mental obscuration, somnolence alternating with sleeplessness, delirium, maniacal paroxysms, impairment of muscular power and of general and special sensibility, impaired reflexes, inability to speak, and deepening stupour - which scene is sooner or later terminated by the death of the sufferer. The spinal cord shows increased vascularity, or perhaps more prominent obtrusion of vessels - the anterior columns being least involved, the posterior median raphe and the columns being those most usually affected. In some cases there is thickening of the muscularis, which may encroach upon the cavity of the vessel itself - the non-elastic intima being in consequence made to assume a plaited form. Sometimes the vessel is occluded by this muscular tissue. This change is practically identical with the increase of muscularis observed by Sir George Johnson in chronic nephritis. Owing to less concentration on the vascular supply of the cord than of the brain, this in many cases has not been observed. The spinal cord of drunkards who have died subject to alcoholic progressive multiple peripheral neuritis may show a softening of certain portions of the cord (Clark;- Practitioner, Dec., 1881), or a few diseases patches in the mid-dorsal region, disease of the small vessels throughout, with increase of connective tissue in the lateral column. Inflammatory changes and degeneration in some ganglion cells, degeneration of Lissauer's posterior root zone in the lumbar region and general involvement of Gall's columns with disease of

the nerve roots, disease of the nuclei of some of the cranial nerves in the pons and medulla oblongata, slight degenerative changes in the ganglion cells of the cerebral cortex, and disease in the vagus and phrenic nerves have also been described by various authors - Campbell (Trans.Path.Soc.Medical Inst.Liverpool, Feb.23, 1893) amongst them. The seat of the disease, however, has been found to be chiefly peripheral, and generally limited to the fiber nerve terminations; the intensity of the morbid process, where the degeneration has extended to the larger nerve branches, diminishing in proportion to the distance from the periphery. The morbid changes are nearly, if not always symmetrical in both upper and lower extremities - the latter being the more frequently affected. This peculiar inflammatory degeneration of the peripheral nerve fibres may be parenchymatous (in the nerve fibres themselves), or interstitial (involving the tissue in the interstices), or external in the sheath - all occurring more or less in each case. On the whole, most of the inflammatory changes have been found to be parenchymatous; but, as to whether they are primary or secondary, has been a matter of controversy - some attributing the degeneration to strangulation of the nerve fibres higher up. The degeneration which has sometimes appeared in the vagus is credited by some with the acceleration of the pulse, which has been a prominent feature of some alcoholic cases. By other observers traces of congestion of the spinal pia mater have been observed. Sometimes there is an inflammatory swelling of the whole affected part, but frequently there is no perceptible lesion, except on microscopical examination, when the nerves may present a dull appearance, and seem to have lost their normal shape from fatty myeline degeneration. This degenerated portion, at first cloudy, gradually separates into segments, which alter till they have surrounded the axis-cylinder as fatty particles, which increase and develop into granulation corpuscles obliterating, wholly or partly, the axis-cylinder. These changes in the sheath and interstitial tissues and sheath consist largely of an enormous increase of the nuclei of the sheaths, and infiltration with leucocytes, together with thickening of the perineurium. Wasting of the fibres of the extensors of the wrist, the interstitial spaces being crowded with leucocytes and nuclei, has also been reported. In alcoholic dementia and insanity the morbid lesions are central, and consist of brain-shrinking and softening, ventricular effusion of blood-stained serum, shallowing of the furrows between the convolutions, and tortuous atheromatous vessels. In the peripheral forms of alcoholic paralysis, however, the natomical alterations are mainly peripheral.

Chronic alcoholism has amongst its earliest manifestations disorders of general sensibility, which same occur in the following order: hyperaesthesia, dysaesthesia, and anaesthesia. Disturbances of special sensibility manifest themselves, quite independently of hallucinations, as sensations of malaise, of discomfort, of chilliness, of cramps, or of abnormal warmth or cold. They are apt to be associated with occipital or fromtal headache; they are most common during the evening; less frequently they are induced by the warmth of the bed;

and,again,they are experienced on rising.Sometimes these disorders of general sensibility amount merely to general discomfort,at other times to extreme pain.They are usually limited,often to the feet and legs,sometimes to the hands and arms;again,they are experienced in the trunk,and especially in the back.Disturbances of sleep are amongst the most frequent phenomena of chronic alcoholism.Sleep is light,uneasy,and disturbed,difficult to obtain,troubled with dreams,and unrefreshing.More or less insomnia is by no means rare;but it is found more often in connection with exacerbations of alcoholism than in the chronic form of the latter which we are now considering.By increased sensibility to pain,to mere contact,to temperature,and in an exaggeration of the muscular sense is hyperaesthesia manifested.There are usually two forms encountered amongst alcoholics - the superficial and the deep.The former usually manifests itself by an exaggerated sensibility of the skin - especially along the course of the superficial nerves and at their points of emergence from the deeper structures.The latter consists in a more or less intense sensation of pain,often diffuse,sometimes unbearable,and associated with a sensation of heat ot cold, which is often referred by the patient to the deeper muscles or to the bones and joints,is increased by pressure or movements,and is commonly experienced in the lower extremities.Of much more common occurrence, however,is anaesthesia,which may implicate the skin, the mucous tissues,or the deeper structures,and is, moreover,developed during the later period of chronic alcoholism.It has even been observed at the verge of the anus,and in the submucous tissue of the genetalia; but the regions in which this anaesthesia is commonly found are,as a rule,those of a lower temperature than parts in which sensation is normal.It may extend to the conjunctiva,and even to the cornea and the mucous membrane of the throat and mouth.It presents all degrees,from mere impairment to absolute loss of sensation. In the latter case,contact,pain,temperature,and electrical stimulation equally fail to excite sensation.In the deeper anaesthesia of alcoholism,pressure and electro-muscular sensibility are alike impaired;and the muscular sense is also enfeebled or abolished.

Spasms,convulsions,muscular paresis,subsultus,and tremor are the disorders of motion:the latter is of very common occurrence in the course of chronic alcoholism,and consists generally of a series of very rapid rhythmical movements.Sometimes the extent of the movement is increased,and the rhythm thereof irregular; the movements are then choreiform.It is a common thing to find chronic alcoholics troubled with loss of muscular power,which may pass,little by little,into complete palsy.It is,however,neither constant nor proportionate to the gravity of the case in other respects.Whilst,as a rule,it is developed insidionsly,it occasionally shows itself with remarkable suddenness,and is often associated with tremor.When occurring suddenly,it is usually preceded with some acute complication,and may disappear as quickly as it came.At first there is mere feebleness,which,beginning in the fingers,extends to

the arms and hands,after a time perhaps manifesting itself in the feet.A common phenomenon in chronic alcoholism is tremor,as has been noted above.It may be continuous;but more frequently it appears only in the morning.The subject has then some difficulty in dressing himself - particularly in buttoning his coat or other articles of clothing,in shaving himself,or in raising a cup to his lips.This symptom commonly ceases after the ingestion of a certain quantity of alcohol - only to return on the following morning,or after a considerable period of abstinence.The tremor is intensified by voluntary movements;and it most commonly affects the upper extremities,next in frequency the muscles of the face,and,finally,the lower limbs.In rare cases it affects the muscles of the whole body.Alcoholic fremor affecting the hands and arms renders the subject awkward,and interferes with his ability to work;affecting the lower extremities,it gives rise to an embarrassing and irregular gait;affecting the lips and tongue,it produces hestitation of speech or stammering;and when it is of high degree articulation may be so imperfect that conversation is impossible;affecting the muscles of the eyes,it gives rise to nystagmus. Subsultus tendinum,spasmodic contractions,and cramps are often associated with the tremor - all of which phenomena affect by preference the muscles of the lower limbs and of the face,and are usually localized.

Paralysis constitutes a common complication of the alcoholic dyscrasia.James Jackson (New England Jour. of Med. & Surg.,1822,Vol.xi) was the first to describe it scientifically,designating it,from its most prominent symptom,"arthrodynia".He saw it chiefly amongst women,and blamed excesses in ardent spirits for its occurrence.He specially noted its gradual onset,with pain in the lower extremities,and especially in the feet,and afterwards extending to the hands and arms. The hands may be affected first in some instances,but in all cases in the advanced stage of the disease the pain is more severe in the feet and hands than in the upper limbs.The pain in excruciating,and varies in degree at different times.It is accompanied by a distressing feeling of numbness.After the disease has continued for a short time,there takes place some contraction of the fingers and toes,as well as inability to use these parts freely.At length the hands and feet become useless.The flexor muscles manifest,as in other diseases,greater power than the extensors,and the whole body diminishes in size,unless it be the abdomen;but the face does not exhibit the appearance of emaciation common the many visceral diseases.The diminution is especially observable in the feet and hands.At some time the skin of these parts acquires a peculiar appearance;and the same appearance is noted in a slighter degree in the skin of other parts,namely,great smoothness and shining,with a sort of firmness of the skin.There is no effusion under the skin,and some change in the organ accounts for the character which it assumes.The integument looks as if tight and stretched,without rugae or wrinkles (sometimes as when the parts adjacent are swollen),but the skin is not discoloured.Huss (Chronic

Alcoholism,Stockholm,1849) and others have,since Jackson's day,described various forms of paralysis due to alcoholism.Under the name of "alcoholic paraplegia", Wilks (Lancet,1872,Vol.i,p.320) described a form of alcoholic paralysis of which he had seen numerous cases (especially in drunkards),several of the cases terminating in recovery after the complete and abrupt withdrawal of the alcohol.He regarded the disease as due to degeneration of the cord and thickening of its membranes.The symptoms are severe pains in the limbs (especially the lower ones),with wasting,numbness,and anaesthesia, and only slight power of movement or inability to stand. The symptoms are not unlike those of ataxia.Several observers have since reported other cases.Alcoholic paralysis is regarded by Hun (Amer.Jour.Med.Sci.,April, 1885) as a special form of disease with the following symptoms:"Neuralgic pains and paraesthesia of the legs, gradually extending to the upper extremities,and accompanied at first by hyperaesthesia,later by anaesthesia, and in severe cases by retardation of the conduction of pain.Along with these symptoms appears muscular weakness,which steadily increases to an extreme degree of paralysis,and is accompanied by rapid atrophy and great sensibility of the muscles to pressure,as well as to passive movement.Both the sensory and motor disturbances are symmetrically distributed.The paralysis attacks especially the extensor muscles".Transient delirium or loss of memory are symptoms of mental disturbance that are never absent;and one seldom fails to observe vasomotor complications,as oedema,congestion,etc.,as well as abolition of the reflexes.A decided degree of ataxia is also superadded to these motor and sensory symptoms. The symptoms indicate the occurrence of multiple neuritis,and the lesions consist of degenerative changes in the peripheral nerves,but no anatomical alterations in the cord itself.Lesions in the cortex of the brain are held responsible for the associated tremor,ataxia, and mental derangement.Dreschfield (Med.Times & Gaz., Dec.,1881) has divided the cases into two groups of (1) alcoholic ataxia,and (2) alcoholic paralysis - according to the more prominent symptoms.The symptoms of the ataxic form of alcoholic paralysis (which represents a milder type) are lancinating and shooting pains in the lower extremities,sometimes in the upper,with areas of anaesthesia and retarded sensibility,but without ocular symptoms.The muscles are painful on pressure, and atrophy may be moderate or absent altogether.There may be shooting pains down the legs to the toes - the same being of a shooting character,and followed by a sense of numbness.Inco-ordination is marked,and there is abolition of the tendon reflexes.Atrophy - chiefly affecting the extensors of the fingers and toes - is usually present in the paralytic form of alcoholic paralysis,which,in the vast majority of cases,is associated with persistent delusions.In some cases the paralysis and atrophy come on acutely,in others more slowly.When the patients come under observation,they are usually unable to stand or walk,and,therefore,it is not easy to determine whether or not the paralytic stage has been preceded by a stage of ataxia.As the sensory phenomena

in these cases are the same as in the first group, it is probable that pseudo-ataxic symptoms have preceded the slowly developing paralysis. Paralysis and atrophy of the extensors of the fingers and toes, with paresis of other muscles, are associated with other sensory phenomena referred to. Tendon reflexes are absent; the superficial reflexes are are considerably diminished; and recovery takes place in the large proportion of cases on withdrawal of the alcohol. The symmetrical character of the alcoholic paralysis is insisted upon by Lancereaux (Gaz. des Hop., 1883, No. 46), who describes it as affecting either the upper or lower extremities, and gradually extending towards the trunk. The lower extremities are affected always more than the upper, and the extensor more than the flexor muscles. The peripheral nerves show extensive degenerative changes, but the brain and spinal cord are normal. Anaesthesia is present, and the electrical reactions are diminished.

Convulsions, which closely resemble those of epilepsy, are sometimes induced by excesses in alcohol: this is especially the case as regards absinthe - a combination of this substance with aromatics and oil of wormseed. Alcoholic epilepsy, when once established, may continue even after the alcoholic habit has been discontinued. Mental disturbances, varying from profound dulness to stupour or mania, lasting from some hours to several days, and presenting the characters of similar conditions following non-alcoholic epileptic paroxysms, usually follow the attack Certain forms of alcoholic convulsions can scarcely be distinguished from ordinary epilepsy. acute alcoholism may be the exciting cause of the convulsive seizures in an epileptic. Alcoholic epilepsy is, however, peculiar to chronic alcoholism, and particularly in individuals in whom there is an hereditary tendency to nervous disorders.

In those addicted to the abuse of alcoholic stimulants, the special senses are apt to be deranged; and that of sight more than any other, constituting a frequent and early symptom of the chronic vice. Such persons frequently complain of muscae voluntates, streams of light, sensations of dazzling, scintillations, and phosphones; and these phenomena may be constant or temporary. Diplopia, and other visual disturbances of the most irregular and annoying character, also occur. Sometimes there is dyschromatopsia: the colours are confounded, red appears brown or black, and green seems to be gray, etc. In the more advanced cases amblyopia may occur. The acuity of vision rapidly diminishes, sometimes to the point that the person distinguishes the largest print with the utmost difficulty. Other objects appear as through a fog, and their outlines are distinguished only after repeated and close effort. Again, blindness (almost absolute) occurs after the course of some minutes, passes rapidly away, only to return again at intervals. Not infrequently the sight is better in the morning and evening than during the day. Achromatopsia also occurs, and is characterized by enfeeblement, and not infrequently by the momentary loss of power to recognize colours - particularly the secondary tints. Cases of colour-blindness seem to depend, to some extent at least, upon alcoholic disturbances of vision. Impairment of the

power to ~~te~~ distinguish colours must not, however, be confounded with the difficulty experienced by many alcoholics in recognizing different colours successively presented to the eye with some degree of rapidity. Such persons are able to distinguish colours when sufficient time is permitted them. Their difficulty depends upon tardiness of perception, such as is often experienced by neurasthenic subjects in recognizing faces in a crowd, rather than upon any failure in the power of recognizing colours. The ophthalmoscope at first reveals no appreciable lesion; and the disturbances of circulation, venous stasis, and peripapillary infiltration, thus observed, appear to be inadequate to explain the visual anomaly in question. Atrophy of the optic nerve occasionally occurs as a result of alcoholism, and nystagmus has been frequently observed. The state of the pupils is variable, and without constant relation to the acuity of vision. They are not infrequently uniformly dilated, contracting slowly under the influence of light. More rarely they are permanently contracted: occasionally they are unequal. Very often no structural alterations can be found to account for these visual disorders, which, as a rule, are not permanent, at least in the beginning. Later they are of longer duration; and alcoholic amblyopia occasionally degenerates into incurable amaurosis. The sense of smell is apt to be impaired in chronic alcoholics, but this is a symptoms which seldom occasions them to appear for treatment. The same is also true as regards the sense of taste, which may be lost also in rare instances. The sense of hearing is sometimes involved in the alcoholic dyscrasia, and in a way resembles the disturbances of vision above described. It may be greatly impaired, diminishing by degrees until it becomes, in certain cases (without appreciable lesion), almost or completely lost. Sometimes, however, the sense of hearing is so exquisite that the least noise causes pain. Usually the patients complain of curious subjective sensations, which they describe as humming or whistling sounds, the ringing of bells, music, or the murmur of a crowd at a distance.

Among the earlier of the mental phenomena of alcoholism is deterioration of the moral sense. Alcohol, by its anaesthetic action, takes the fine edge off perception - so that ~~that~~ the dulled perceptive faculty cannot see or feel the physical and the psychological damage to the texture of the body, and impairment of intelligence. In this state of partial anaesthesia the drunkard neither feels nor suspects that anything is amiss with him. He is therefore often utterly unconscious of danger, even when it is evident to all around him that he is drinking himself into the grave. While his senses are benumbed under this state of narco-anaesthesia he feels no pain, when, if he were not to some extent narco-anaesthetic, he would be groaning from bodily suffering. He is quite unconscious of the deterioration of his system and muscular power, as well as of the way he is undermining his vital organs by the poison. Thus he drifts recklessly along upon the tide of chronic alcoholic vice - either blind to the dangers which are before him, or, if he sees them at all, beholds them only in confused, cloudy, and indefinable mist, which make no

impression on his mind,and will convey no sense of peril to him.All his powers of mentation are thus involved,and he can neither comprehend to the full,nor discriminate accurately.He cannot measure the amount of force which he put forth,any more than he can calculate approximately the amount which is required for the accomplishment of any effort.Thus he may be,quite unknowingly and without any intention to do violence, guilty of manslaughter.Not only when intoxicated,but when labouring under the influence of the anaesthetic effect of regular and free alcoholic drinking,his mental acumen may be so enfeebled that he may strike a blow violent enough to kill one,when he intended only to give a slight push.This paralytic action of alcohol may involve all the faculties,so that he can have only a faint and confused idea of facts,appearances,and morals..The mendacity of the chronic drunkard is proverbial:yet,he is not intentionally always a liar.As he does not see things as they actually exist,but only,as it were,through tinted mental spectacles,so his feelings are often the mere deceptive sensations of an alcoholically disordered brain.The inefficient mentality,and the perverted moral sense,of the drunkard not rarely lead to unusually immoral and indecent acts,as the alcoholic poison gradually and steadily extends and deepens its malign influence over the entire man.These acts of indecency are often the effects of physical tissue changes in the brain and in the higher nerve centres,though the acts may not be done until long after the person may have given up the drinking of alcoholic intoxicants.As in the post-paroxysmal intervals of epilepsy and the post-paroxysmal periods of epilepsy, when maniacal violence may suddenly occur,so in chronic alcoholic poisoning the now abstaining,though erstwhile intemperate subject,may be the prey to post-inebriate indecencies,as well as other symptoms resulting from tissue degeneration initiated by alcohol years previously.This moral declension is partly due to the tissue-depraving influence of secondary poisons (secondary to the alcohol) arising from the undue retention of waste products,the elimination of which is retarded by alcoholic interference.By its direct poisoning influence, by its lessening and vitiation of the blood supply to the brain and nervous centres,and by the excessive secondary retention of carbonic acid,urea,and other poisons,a chain of pathological changes is set up,which, while disturbing brain and nerve functions and antedating senile decay,enfeebles,distorts,and degrades the moral sense.This series of abnormal retrograde alterations - all of them practically symptoms of cerebral,mental,and moral dissolution - is as really a progressive physically-initiated paralysis of mind and morals as is hemiplegia,or the dropped feet and hands of alcoholic peripheral neuritis or lead poisoning.The explanation of this alcoholic mental and moral paralysis is to be found largely in the alteration of nerve structure and function.To have the capacity to acquire accurate knowledge,consciousness must be healthy and complete.Being a complete act,each part must be accurately performed.If sensation be dulled by alcohol, nervous structure cannot take place on an accurate

impression,and nerves cannot transmit accurately.Even with perception only imperfect,consciousness cannot be wholly accurate.Still less accurate and complete must a conscious act be if representation,ideation,sensation, and volition are also defective.The staggering gait and incoherent speech of an intoxicated person are evidences of the partial paralysis of the muscular system. The deceit and falsehood - though the latter may be unintentional - of the alcoholic are indicative of a partial paralysis of the nerve centres which regulate the physical seat of the moral nature in the brain. Complete universal paralysis is death,but incomplete universal paralysis is disorganization of function.A drunkard whose whole nervous organism is thus partially paralyzed can neither reason,judge,nor discriminate in the elucidation of obscure and intricate problems.Alcohol,besides vitiating the blood,irritating tissues,and undermining the vital organs,destroys nutritional coordination,so that the relationship of various parts of the body is rendered asymmetrical.Fibro-cellular structure is specially subject to this diseased and inordinate growth.This morbid excessive increase of substance is so evident in such organs as the liver,kidneys, and brain,and so productive of structural and functional disorganization,that there is not a degenerative bodily condition which may not result from alcoholism. A sudden moral lapse,in an alcoholic of former moral high tone,is often as pathognomonic of an alcoholic lesion in the cerebral fibrous connective tissue as is cirrhotic ascites of a like lesion of the liver.This abnormal fibrous-tissue proliferation,by intrusion and pressure, alters the shape of the nerve cells,some of which are strangulated by the continued pressure followed by contraction of the reticulated matty fibrous structure. In this way cells and nerves are,by the lessened blood supply,so starved as to waste and die.By and by,the physical degradation of the central nervous tissue is assimilated to the system and modifies the constitution, which constitutional modifications can be transmitted to all these pathological degenerations of tissue,with the inhibitive intellectual and moral damage;alcohol enfeebles volition by a progressive paralysis of the will.The chronic drunkard may have a knowledge of his past and present state,may be so alive to each downward step to death as to be plunged into remorse in his intermissions of sobriety,may apparently form the strongest determination to drink no more:yet,with all his good resolutions,and in spite of the most desperate efforts to abstain,he may be utterly powerless to refrain from intoxication.This volitional enfeeblement, this will-palsy,is frequently the product of the pathological progressive reduction of will-power which alcohol,in virtue of its being a potent will-paralyzant, exerts.By a lengthened chain of morbid degenerative changes (capillary paralysis,circulatory tumult, vascular atheroma,cellular decay,membranous thickening, cerebral congestion,and neuroglian proliferation) alcohol deadens the conscience;deficient and perverted nutrition leads to the initiation of this series of pathological,physical,intellectual,moral,and volitional

degradations.Furthermore,by irritating the liver,kidneys, and stomach,alcohol persists in causing pathological structural alterations of an organic character,which impair these depurative and digestive functions on the efficiency of which health so largely depends. The alcoholic depraving of the blood,derangement of function,and poisoning of the organism give rise to the morbid intoxication-impulse and craving.Thus,by pathological action,alcoholic poisoning induces the disease of inebriety or narcomania.In no form of mental alienation are delusions of persecution more prominent than in alcoholic insanity.The chronic drunkard is a man of feeble will and of general uncertainty;under even the most ordinary circumstances he scarcely knows his own mind.He cannot give a decided negative to an unwelcome proposition;he is vaccilating,hesitating,and more or less dependent upon others.He becomes unfit for his ordinary avocations:infact,he has no desire to perform them.Superadded to these phenomena is loss of mental power,with its well-known consequences.At all times,and under all circumstances,the drunkard's actions are tempered by his dyscrasia,and his general condition - both mental and physical - is unsatisfactory and deplorable.

DELIRIUM TREMENS.

This is the term applied to a peculiar form of alcoholic delirium,accompanied by insomnia,running a most marked and stubborn course,even continuing for several days in succession,and invariably accompanied by tremor.It is an episode of the chronic alcoholic condition.It is only very seldom that even prolonged temporary excesses,in the case of persons ordinarily sober, are followed by delirium tremens.Such excesses in the subjects of chronic alcoholism are,however,perhaps the most common cause of this condition.Debauches - especially when associated with venereal excesses - very frequently end in it.Occasionally also,but less frequently than was formerly supposed,the abrupt discontinuance of alcohol is followed by an outbreak.Other exciting causes are violent emotions,as anger and fright;hardships,such as prolonged hunger,over-exertion, or watching;acute maladies,as pneumonia,dysentery,erysipelas,the exanthemata,or rheumatism;finally,serious traumatisms,with or without great loss of blood.Delirium tremens usually occurs in those addicted to the abuse of spirits,less frequently in beer-drinkers,and comparatively rarely in those whose excesses have been restricted to wine.As a rule,the attack does not begin abruptly; its prodromes - which may last for a few days to a week - usually consist in an exaggeration of the previously existing symptoms of chronic alcoholism. The patient complains of malaise and restlessness;he becomes depressed,morose,anxious without cause,and apprehensive of the occurrence of some calamity,or he is more impatient and choleric than before.The inability to apply himself to his ordinary avocations is lost. He complains of vertigo,as well as of ringing in the ears; sleep is disturbed,or there is already insomnia.At the same time the stomach is deranged,appetite is lost,the

tongue is coated with a thick yellowish-white fur, and there is diarrhoea present. During sleep dreams of an unpleasant and distressing character are experienced. Some hallucinations of sight and hearing are present during the waking hours, as the patient is never free from them as the sleeplessness becomes more pronounced. The visual hallucinations take various forms - usually of a horrible character. Over the bedclothes are seen crawling rats, mice, snakes, lobsters, etc., and the same objects are affirmed to be wandering about the room. The patient, terrified in look and action, is a deplorable sight. He imagines his attendants are an attacking army, and does his best to overwhelm them in combat. In spite of their changing character, the visual hallucinations remain of a horrid nature. It is less often that the patient has hallucinations of hearing. He can hear the slightest ordinary sound greatly exaggerated; the slamming of a door may be interpreted as the sound of a house falling to the ground. Sometimes he hears abusive or loathsome language uttered by his attendant or some imaginary person, or violent altercations between several people in the room may be expressed to his imagination by the words heard. One occasionally meets with cases of perversion of taste and smell. Perversions of the general sensibility are more frequent than perversions of taste and smell. The idea that animals of a loathsome character are crawling over his skin, into his mouth, and down his throat is conceived by the patient. The patient's mental state varies. When sharply spoken to he may give a rational answer; or, again, he may lie in a dazed condition and will not answer. Usually, however, he is constantly chattering incoherent words, in the milder cases acting out of his usualy occupation. Early in the disease the characteristic tremor, from which the delirium takes its name, and which is most marked in the hands, feet, and tongue, is present. Except in the mildest cases, pyrexia - of a greater or less degree - is met with. In the terminal stages of fatal cases hyperpyrexia may be present; temperatures of 108. to 109. F have been recorded. There is rarely, except in the severest cases, a rise of temperature during the first day or two: it seldom exceeds 102. F. The pulse during the early stages is frequent, large, and easily compressible: in the severe cases it becomes frequent and small. An increasingly rapid pulse as the disease progresses is a sign of serious import. The urine is usually scanty, high-coloured, and often albuminous. The face will be found flushed and the eyes suffused at first, but this gradually passes away and is replaced by pallor. There is complete loss of appetite, and the tongue is heavily coated. These phenomena are observed to continue, with unabated or increasing severity, from three to six or seven days; but in fatal cases the sleeplessness persists, the pulse becomes more rapid and persistently feeble, and the patient passes into a state of coma, or dies exhausted. In favourable cases the insomnia, which has usually been persistent from the first, gradually, or it may be suddenly, gives place to sleep of several hours' duration, from which the patient awakes comparatively free from delirium, and recovers rapidly. In the case of patients who have had repeated attacks of delirium tremens, we often meet with one or more of the lesions

so commonly induced by the long-continued and immoderate use of alcohol - such as gastro-duodenal catarrh, hepatic and renal cirrhosis, peripheral neuritis, arterial sclerosis, etc. As pneumonia is a very common complication, it is a good routine practice to make a careful examination of the chest repeatedly throughout the whole course of the disease - the more so in view of the fact that the symptoms of pneumonia occurring as a complication of delirium tremens may be so masked by the intensity of the latter as to escape attention. Furthermore, pneumonia may be active factor in bringing about the delirium; or it may be a secondary event, coming on during the course of the nerve disturbance. So characteristic are the phenomena of delirium tremens that it is seldom that it could be mistaken for any other disease. The special sense hallucinations, the tremor, and the history of alcoholism are so apparent that a certain diagnosis is easily arrived at. When the pyrexia is marked, at first it presents some resemblance to meningitis; but in the case of the latter affection headache and vomiting are striking features of the onset, while it is but seldom indeed that these symptoms are observed in delirium tremens. The mortality of the disease varies greatly, being much greater in hospital than in private practice - in the proportion of ten to one. Recovery is the rule in the majority of first attacks, provided there are no such complications as pneumonia. In repeated attacks - especially in those with degenerated kidneys, sclerosed arteries, or fatty hearts - the prognosis is always serious. Persistent insomnia is an unfavourable sign, and the same is true of a rapid and feeble pulse. Considerable elevation of temperature (103. to 104. F.) is also an unfavourable, and usually grave, symptom. Occurring as a result of severe traumatism, delirium tremens is frequently fatal. The older the patient the greater the danger of the disease.

ALCOHOLIC INSANITY.

The insanity occurring in the course of chronic alcoholism assumes various forms - such as melancholia, mania, chronic delirium, dementia, and paretic dementia. Indeed, alcohol is now regarded as the commonest of all causes of insanity. Clouston (Clinical Lectures on Mental Diseases) estimates that from fifteen to twenty per cent. of the cases of mental disease may be referred to alcohol as a cause, wholly or in part. Just as epileptic and hysterical insanity may be exhibited as the outcome of epilepsy and hysteria, so alcoholic insanity manifests itself as a sequel of chronic alcoholism. The various forms of mania-a-potu - espedially the maniacal forms of acute alcoholism, delirium tremens, and other transitory psychoses which occur in acute and chronic alcoholism - are properly included in this group. Alcoholic insanity frequently manifests itself in the form of melancholia. It may begin abruptly or gradually, with changes of character, vague disquietude, irritability, and disturbances of sleep amounting in many cases to actual insomnia. Hallucinations of hearing are common and characteristic. In this respect the morbid mental condition is a strong contrast with delirium tremens,

in which the hallucinations are principally visual.The hallucinations of hearing usually consist of accusing or threatening voices.These voices inform the patient that he is to be poisoned,assassinated,murdered,or that outrages of all kinds are to be committed upon him;they accuse him of murder,of robbery,of rape,and of other shameful crimes.In consequence of these hallucinations of hearing,the patient falls into a profound melancholia,often characterized by suicidal impulses which are sometimes the direct outcome of hallucination,at other times blind and unreasoning.Precordial distress is also apt to be present,and there are sometimes cephalalgia and insomnia.Trembling is usually a marked symptom. Local anaesthesia and hyperaesthesia,if they occur,are transientThese cases usually recover,but sometimes they lapse into a state of chronic delirium.The ordinary duration of this form of alcoholic melancholia is much longer than that of delirium tremens,sometimes extending throughout several months.Various hallucinations,which present peculiar features,characterize the maniacal form of alcoholic insanity.Thus,the hallucinations of vision commonly relate to supernatural visions or apparitions,and are attended with luminous phenomena of various kinds:these are of a wandering character,and by no means fixed.These visions may be occasional or they may be frequently repeated;or the hallucinations may consist of emperors,kings,princeses,and potentates,or of military commanders,in the midst of which the patient passes his existence,On the other hand,the hallucinations may be made up of historical scenes,pageants,the movements of armies,battles,and the coronations of kings;or they may be landscapes,pleasant to the eye, such as snow-clad mountains,valleys filled with flowers, magnificient forests,and so on.Less often are hallucinations of general sensibility present.When they are, they consist of various painful sensations,giving rise to the delusions of blows,stabs,bites of animals,electrical discharges,and the like.In consequence of these hallucinations the delusions are often of a grandiose character.Thus,the patient may believe himself to be enormously rich,the Pope of Rome,the German Emperor,or some other great potentate.The degree of chronic alcoholism existing at the time of the manifestation of the mania determines the patient's somatic condition.There are usually marked tremor,hesitation and uncertainty of speech,stubborn sleeplessness,and uneasiness.Acute mania may show itself abruptly,attaining its full development in the course of a few days,or the development may be gradual.In alcoholic mania the prognosis is unfavourable;recoveries are rare.The patient may lapse into a state of chronic delirium;and the fatal termination is sometimes the result of the maniacal condition,and sometimes the result of complications affecting the viscera.Sometimes acute alcoholic mania and acute alcoholic melancholia end in chronic delirium,or it may be due to repeated attacks of delirium tremens,or it may arise independently of these disorders.In the latter event,chronic delirium is usually of rapid invasion,and is characterized by the prodromes common to the various forms of alcoholic insanity - such as irritability,

headache,vertigo,insomnia,and the like.Hallucinations of hearing are very common:those of the other senses occasionally occur.The delirium takes the form of the delusion of persecution.The patient believes himself the object of plots and conspiracies:his enemies are seeking to ruin his good name,to tarnish his reputation, and to poison him.They beat him and rob him;they put filth in his food,or charge him with electricity;they steal away his vital force,or his sexual power;and they taunt him and mock him.Relating to infidelity in marriage is a delusion so common as to be almost characteristic of chronic alcoholic delirium.The patient cherishes unjust,and often absurd,suspicions of his wife. Supplying as they do logical motives for the most appalling and brutal crimes,these delusions are often of the greatest importance.Furthermore,they arise independently of either hearing or sight.The combination of a delusion of mutilation of the sexual organs with the delusion that the patient's food is poisoned,and that his wife is unfaithful to him,may be considered as to nearly demonstrate the existence of alcoholic insanity as any one group of symptoms in mental pathology can prove anything.By virtue of the transitory and incoherent character of its delusions alcoholic delirium differs from ordinary chronic delirium,in which a more fixed and permanent character is more apt to be observed. Chronic alcoholism frequently terminates in dementia, which may develop without the intervention of other forms of mental disease,in the course of chronic alcoholism as a mere intensification of the intellectual and moral degradation of that condition.This is specially liable to occur in hereditary alcoholism.Dementia also constitutes the terminal condition in other forms of alcoholic insanity,and likewise in a considerable proportion of cases characterized by repeated attacks of delirium tremens.Sometimes the symptoms may be so slight as to escape observation;but usually they are well-marked.They present little that is characteristic as compared with ordinary dementia.Alcoholic conditions of dementia are perhaps more filthy and more difficult to manage,duller and more mischievous,than others;and their somatic disorders are more marked.In them,hyperaesthesias are replaced by anaesthesias;sleep is apt to be irregular and disturbed;and the hallucinations characteristic of the antecedent alcoholic psychoses now and then reappear.A small proprtion of the milder cases can be arrested under appropriate treatment; but usually slowly-developing failure of intellect,forgetfulness,stupour,etc.,end in more or less complete loss of mental power.Alcoholism is also a frequent cause of paretic dementia.The intellectual disorders and motor disturbances characteristic threof,varied as they are, are associated with cerebral lesions,and especially with lesions of the cortex equally varied - lesions which are common in chronic alcoholism.These lesions vary from meningeal congestion and inflammation to profound inflammatory and degenerative alterations in the substance of the brain itself.Paretic dementia may develop after repeated attacks of delirium tremens.Here the early attacks end in recovery apparently complete; later,the convalescence is unsatisfactory and prolonged,

leaving some indications of mental impairment,which,, after repeated attacks,increases and is accompanied by delusions of grandeur,embarrassment of speech,unequal dilatation of the pupils,and general paresis.These cases practically never recover.Paretic dementia,again,may develop also after long-continued excesses without appreciable mental or cerebral distyrbances.In such cases it presents no specific indications of its alcoholic origin.The difficulty of determining the influence of alcohol is increased by the fact that alcoholic excesses are frequent in the prodromal and early stages of this form of mental disease.

HEREDITARY ALCOHOLISM.

I have already made some reference to the influence of heredity in the production of alcoholism,i.e.,when discussing the etiology of the latter.One or both parents being alcoholic,the dyscrasia may appear in the child.Indeed,the hereditary transmission of the affects of alcoholism have been recognized from remote antiquity. Thus,Aristotle believed that a woman given to drinkenness would bear children with the same tendency;Plutarch affirmed that the children of drunkards will abandon themselves to the same vice;and Hippocrates speaks of the distressing effects of alcoholism upon the product of conception.In this connection the writers of antiquity could be quoted at great length.In more recent times the fact has been generally recognized that many maladies caused by the abuse of alcohol are liable to be transmitted to succeeding generations,and that alcoholism may in this way - in the course of two or three egnerations - lead to the complete extinction of families.Alcoholism on the part of parents certainly exercises an unfavourable influence upon the health of their children,who are specially disposed to cerebral congestion,hypochondriasis,intellectual feebleness,and insanity.Two forms of hereditary alcoholism may be recognized:(1)That in which the disease or defect of the parent is transmitted to the offspring;and(2)that in which the defect or disease is not directly transmitted to the offspring,but a morbid tendency which manifests itself in defects or diseases of a different kind.In the first form of hereditary alcoholism the appetite for strong drink is frequently transmitted from parents to children,just as other traits of the minds and body.Sometimes it develops early,sometimes late in life;as a rule, however,this hereditary propensity shows itself at an early age,and is apt to be intensified at the time of puberty and of the menopause.Objections have been urged against this theory of hereditary alcoholism.Amongst these the strongest perhaps is that the taste for strong drink in the offspring of alcoholic subjects is the result rather of opportunity than of heredity.The frequency with which alcoholic tendencies develop themselves in children reared and educated away from their parents, and the number of cases in which these tendencies show themselves only at an advanced period of life,long after

the influence of example in childhood has ceased, sufficiently disproves this assertion. The hereditary influence, however, does not show itself invariably in the desire for drink. On the contrary, not rarely it consists in feebleness of nervous constitution, characterized by irritability, want of mental repose, or a restless or vicious disposition which demands constant excitement. Hence, such individuals, though intellectually well developed, are often scarcely more than moral imbeciles, in whom the passion for drink may be replaced by the opium habit, addiction to gambling and to other vices, and whose career is shaped largely by an inordinate and insatiable craving for excitement of all kinds. Hereditary alcoholism follows the laws of heredity in general. The tendency may be transmitted directly from one generation to another, or may skip one or more generations, taking some different form in the intermediate periods. The second form of hereditary alcoholism manifests itself in a totally different way. It is the variety in which the symptoms of chronic alcoholism are manifested in the offspring in the absence of the direct effect of alcohol; that is to say, not the taste for alcohol, but the results of the gratification of the taste are transmitted, just as epileptic or hysterical parents may transmit to their offspring epilepsy or hysteria. Thus, it is not rare to encounter in the descendents of alcoholic parents perverted sensation (both general and special), hyperaesthesia, anaesthesia, and flying neuralgias which do not follow always the course of the particular nerves, but frequently affect, in a genral way, the head or the members, or manifest themselves as visceral neuralgias. Insonia is frequent in such individuals, and augments the other symptoms. Such persons are subject to hallucinations of sight and hearing very often, and in trifling illnesses are sometimes delirious. They are also much troubled with headaches from slight causes, and with migraine, visual disorders, and vertigo. Notwithstanding a regular and perfectly temperate life, digestive troubles also frequently occur. As manifestations of the influence of alcoholism upon the offspring may be cited certain moral peculiarities, otherwise inexplicable, such as are seen in children who, at a very early age, show themselves vindictive, passionate, and cruel, to whom the sufferings of others afford pleasure, who torment their companions and torture their pets, and show precocious tendencies of all kinds. Later in life, these persons become lazy, intolerant of dicipline, vagabonds, unstable in character, without the power of application, and devoid of moral sense; they are given to the drink, defiant of the law, and constitute the great body of tramps, paupers, and criminals. The children of alcoholic persons are curiously subject to morbid influences, and are often feeble, puny, and badly nourished. Without even a special appetite for strong drink, and in the absence of the special morbid manifestations described above, they are singularly liable to mental and nervous diseases of various kinds. Amongst these, convulsions and epilepsy are especially frequent; hysteria and various kinds of insanity also occur. In this group of cases we find every degree of arrest of intellectual development - from mere mental enfeeblement to complete idiocy.

DIPSOMANIA.

This occurs in the form of repeatedly recurring rage for drink,which,according to the older writers,is preceded by very pregnant prodromal symptoms - and particularly by unpleasant sensations in the lower part of the abdomen.The disease is really a form of insanity, an insane impulse to drink which occurs in individuals degenerated by hereditary taint.They are not insane from drink,but before they commence to drink.This form of insanity is almost invariably periodical,and may recur after a long or short intervalsIt duration also will varu from a few days or a week or more to some weeks or months,depending upon the quantity of alcohol ingested. There is often a stage of mental alteration before the drinking commences,and this is generally depression, so that some have classified the disorder as a form of melancholia.This recurrence is a feature which is common to ither forms of mental disease,and points to the neurotic origin:for these persons in the intervals have no craving for drink,and often have an actual aversion to alcohol in any shape or form.M.Legrain (Dict.of Psychol.Med.,p.394) says that "between the true dipsomaniac who drinks impulsively and the common drunkard, there is a very numerous class of drinkers - actual intermittent drunkards - who seem to obey a sort of impulse,but are more like a common drunkard through their pronounced liking for intoxicating drink,and are also like true dipsomaniacs in consequence of certain psychological characters;as a matter of fact,they are often confounded with dipsomaniacs" For these M. Legrain proposes the name of "pseudodipsomaniacs";and they are, he says,"patients with a weak will,without energy,and easily directed in any direction;actual weathercocks, they appear in the presence of alcohol to be great children incapable of any efficient and energetic action.Nevertheless,they strive,and this consideration explains why their excesses occur periodically in a recurrent manner;they resist until some tempting opportunity makes them forget all their good resolutions.They are the victims of occasion which they do not want to avoid,because they love alcohol;they would never become drunkards if it were possible for them to live always under tutelage".It is undoubtedly very difficult to draw a line of demarcation between these and the true dipsomaniacson the one hand,and the true habitual drunkard on the other.One distinction which may be made between the first two is that the dipsomaniac,when not under the influence of the periodical attack,is proof against temptation,and is more- no more led to drink than another is led to suicide in the intervals between his attacks of melancholia.But the pseudodipsomaniac loves alcohol,and although he may promise repentance and say he will never do it again,at the first opportunity his courage vanishes and he falls.These people may be fitly classed amongst victims of the so-called moral insanity,while the true dipsomaniac should be

ranked amongst those who suffer from insane impulse.The prognosis in the case of the latter is better than in that of the former:for we have to deal with a higher kind of mind,though one clouded by temporary insanity. This we may hope to relieve with measures conducive to the health of the mind and body,by mental training and gymnastics,and by a strict hygiene during the intervals of the paroxysms.When the attack is present,our endeavours may be encoured by the knowledge that it will pass away,if only the patient can be preserved from suicide or some other accident.The morally insane drunkard is practically incurable:for one has to deal with a weak mind,the result,probably,like the other,of inherited taint,but one which all our efforts will not bring to a normal standard.This condition is permanent,and the sufferere is only preserved from a fall at any time by being propped up by force,moral or physical.It is for these that the inebriate asylums are so badly wanted everywhere - for these who are,through their infirmity, quite unable to take care of themselves.The habitual drunkard needs them also,the man or woman who drinks because he likes to drink,whi never strives against it, whether it is the private tippling or public-house orgie.These persons will drink so long as they have money in their pocket,or can turn anything they possess into money.They approach the criminal class more than the insane.They are the people who spend their wages in drink,are often found drunk and disorderly in the street,are locked up again and again,and sentenced to short terms of imprisonment which can do no good.The fear of a repetition of a long sentence may deter them, but nothing else will;for them inebriate asylums are a necessity,as too,compulsory sequestration.They never miss an opportunity of getting stimulants,and will resort to any fraud,strategem,or device to obtain what they so dearly love.In their sober moments they promise anything,and will even take the pledge,but they have neither the intention nor the will to keep it.Their minds are weak and unsound,and all honour and honesty are obliterated.Such persons will ruin themselves and families, neither remonstrance,on the one hand,nor promises,on the other hand,averting their downward career;and for many there is no cure.Yet the intellect to the superficial observer seems unimpaired,and they present no delusions of any kind.

D I A G N O S I S.

It is a matter of simplicity to recognize the ordinary forms of acute alcoholism. In the absence of the previous history of the case, the diagnosis of alcoholic coma from profound coma due to other conditions is always far from being an easy matter: in fact, it is sometimes quite impossible. The history of the case is here of cardinal importance. The odour of alcohol upon the breath is of less positive diagnostic importance than would at first appear. In the first place, sympathetic bystanders may have poured alcoholic drinks down the throat of one found unconscious, or, in the second place, individuals who have taken a certain amount of drink may be, and not infrequently are, seized with apoplexy in consequence of the excitement thereby induced. In all cases the circumstances under which the individual has been found are of great importance. The more common conditions with which alcoholic coma is confounded are apoplexy from cerebral haemorrhage, and narcotic poisoning - especially opium poisoning. To these may be added uraemic coma, and, under exceptional circumstances, sunstroke. The diagnosis of cerebral haemorrhage can usually be determined by consideration of certain facts, as hereunder displayed, for the sake of convenience, in tabular form:

Apoplexy.	Alcoholic Coma.
Pupils unequal or dilated.	Pupils contracted or dilated; eyes injected.
Stertorous, puffy breathing, and flapping cheek.	No stertorous breathing.
No odour.	Alcoholic odour (see above).
Paralysis; hemiplegia.	Usually no paralysis.
Unconsciousness absolute.	May be aroused.
Pulse slow and strong, or irregular; arteries often atheromatous.	Pulse frequent and feeble.
Coma sudden and deep.	Coma gradual.
Convulsions late; may be unilateral.	No convulsions.
Urine generally negative.	Urine generally negative, unless affected by the alcoholic excesses.
Apoplectic habit; heart may show hypertrophy.	Red face and nose, heart often weak, dilated, myocarditic.

The diagnosis of opium poisoning must be made from the history of the case; but when the latter is wanting, because of a lack of veracity or deception, chronic alcoholism may have to be differentiated. The more open and often periodic habits of the alcoholic person, and the general aspect of the physical and mental and complicating conditions, usually show marked differences between the narcotism from the two drugs. In the case of opium, the pupils are usually contracted - the so-called pin-hole pupil; and the use of the stomach-pump will

allow of the examination of the contents of the stomach for diagnostic purposes.

Uraemic coma may simulate that due to alcoholism. The following tabulation of phenomena shows the main differential points:

Alcoholic Coma.	Uraemic Coma.
Pupils contracted or dilated; eyes injected.	Pupils generally dilated; albuminuric retinitis.
Odour of alcohol(see above).	No odour,unless urinous.
May be aroused.	May or may not be aroused.
Pulse frequent and feeble.	Pulse at first strong, later weak and rapid; tension strong;arterio-sclerosis.
Coma gradual.	Coma gradual or sudden.
No convulsions.	Preceded by general convulsions,headache,etc.
Urine generally negative.	Urine albuminous.
Red face and nose,heart often weak,dilated,myocar-	Oedema and pallor;heart hypertrophied.

~~myo~~**The diagnosis** of sunstroke from alcoholism is readily made,as a rule,by noting the previous history, mode of attack,presence or absence of thermic fever, state of unconsciousness,urine,skin,pupils,pulse,respiration,and the nervo-muscular condition - all phenomena well known.

The investigation of the history of the must determine the diagnosis in cases of acute alcoholic poisoning.

In the greater number of instances of chronic alcoholism the association of symptoms is such as to render the diagnosis a comparatively easy matter,even in the absence of a direct history.Alcoholism,as has been already shown,is associated with lesions that are not peculiar to that condition:for many of them occur with more or less frequency in morbid states not induced by alcohol.It is their association and progressive character which will give to chronic alcoholism its individuality.The occasional prominence of certain symptoms,or group of symptoms,may thus,in particular cases,lead to some confusion of diagnosis - especially when the habits of the individual are concealed or his history unknown.The affections of chronic alcoholism must be diagnosticated for themselves here as elsewhere in clinical medicine.The key to their pathology is alone supplied by the recognition of the underlying condition.As a matter of fact,chronic alcoholism is a condition rather than a disease - a condition characterized by varying lesions of the viscera and nervous system,by profound disturbances of nutrition, and by grave mental and moral derangements.This truth being recognized,the cardinal error in diagnosis to be guarded against is that of overlooking the condition upon which the disease itself with which we have to do depends,or is associated.Congestion,inflammation, sclerosis,and steatosis affect the various organs of the body,and therin produce their characteristic symptoms.Profound and lasting disturbances of nutrition may have to be taken into consideration;and psychical derangements,of all grades from mere moodiness to confirmed and hopeless insanity,may be encountered.

So striking are the clinical features of delirium tremens that the condition can be but rarely mistaken for any other disease. The special-sense hallucinations, the tremor, and the history of the case as one of dipsomania, are so apparent that a certain diagnosis is easily arrived at. When pyrexia is marked at first, it presents some resemblance to meningitis; but in the latter vomiting and headache are striking features, while in delirium tremens these symptoms are not met with. The delirium of atypical pneumonia must be thought of also, and the lungs carefully examined for distinctive features. Delirium tremens must also be discriminated from the delirium of some forms of non-alcoholic cerebritis, and from the muttering delirium of typhus and typhoid. This is done by the history and progress of the attack, and by the absence or presence of other symptoms like the rash of typhus, the diarrhoea, abdominal pains, and spots of typhoidal [illegible]

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PROGNOSIS.

In acute alcoholism recovery is the rule in the great majority of first attacks of the ordinary form; but in the case of coma it is unfavourable, when this is rapidly-developing and overwhelming from the large doses of alcohol. From moderate doses, apart from the risk of pneumonia, acute coma usually passes off in the course of a few hours. Provided no complications, such as pneumonia, first attacks of delirium tremens are usually recovered from. In repeated attacks - especially in those with degenerated kidneys, sclerosed arteries, or fatty hearts - the prognosis is always unfavourable and serious. In cases of severe injuries, inflammatory troubles, or infections recovery is very dubious. The tissue-changes in chronic alcoholism are so profound, and they affect such delicate and vital tissues, that when the alcohol-habit thus becomes fixed, permanent recovery never takes place. The treatment appropriate for the inebriate, and forced abstinence from alcohol, relive many of the symptoms and some of the debility, but relapses are all too common, and are almost certain to occur. Insanity and paresis are not infrequent terminations of chronic alcoholism. Many complications are apt to supervene - such as Bright's disease, epilepsy, melancholia, fatty heart, pneumonia, and thrombosis. Upon withholding alcohol and stimulating the peripheral nerves, both by appropriate drugs and external applications, alcoholic neuritis often clears up. In all forms of alcoholism, both acute and chronic, the prognosis is rendered in a high degree uncertain by the psychical disorders which characterize so many of its phases. In consequence of some of these conditions, the patient loses his appreciation of bodily dangers and his power to avoid them; by reason of others, to escape imaginary evils he plunges into new ones; and, finally, some of them are of such a nature that they impel him to commit the most grievous crimes - including murder and suicide - in a blind and unreasoning way. Bot as regards the alcoholic habit, and as regards the development of serious diseases of the nervous system under adverse circumstances - even in the absence of the direct action of alcohol, - the prognosis in hereditary alcoholism is unfavourable. Equally unfavourable is the outlook in cases of dipsomania: for, after a time, the insanity of which the condition is the recurring manifestation declares itself as a more or less permanent state; and the outbreaks become more frequent and prolonged, the mental condition in the intervals progressively more morbid, until the patient lapses into confirmed insanity by degrees - though it must not be forgotten that the paroxysms may recur many times without any apparent serious result; the patient in the course of some days or weeks recovers, abandons his eveil courses, and resumes his usual occupation

TREATMENT.

PROPHYLAXIS.

The prevention of the evils attendant upon alcoholism is as difficult as important, and is a question that the State must largely concern itself with - perhaps even more in the future than at present, as it has to do with the community at large as well as with the individual. The drink-traffic is peculiarly free from the burden of taxation, at least in the comparative sense - due probably to the difficulty in the enforcement of sumptuary laws. Restrictive enactments concerning the manufacture and sale of alcoholic drinks, while partaking of the nature of sumptuary laws, are of a more comprehensive character, being obnoxious to the powerful commercial interests, and to the sense of personal liberty of a large number of individuals in almost every rank of society; they are in alarge measure inoperative, owing to opposition and individual violation, to stem the tide of the evils which arise from the widespread habit of intemperance. The effect of legal enactments, aside from the revenue from taxation, is in this matter somewhat limited, being confined chiefly to the prevention of the sale of liquors to children under a certain age, and persons already intoxicated or on the "black-list", as well as to ineffectual attempts to regulate the quality of the drink sold. The penalties for personal drunkenness, which does not lead to overt acts, are, as a rule, wholly inadequate to restrain it. The best results, upon anything like a large scale, have been obtained by the co-operation of philanthropic individuals in endeavouring to influence the moral tone, especially amongst workmen, to provide reasonable amusements and occupation to take up the time ordinarily spent in publichouses, to diminish temptation, and to provide leisure hours which can be spent where alcoholic beverages are not to be had. Within recent years the decrease in the consumption of intoxicants is in part due to the poor wages which the workingmen are receiving, and in part also to the increasing popular knowledge concerning the dangers of alcoholic excesses, and to the growth of a more wholesome public sentiment. The protection of the individual against the evils of alcoholism consists in the total abstinence from, or the most guarded indulgence in, any kind of alcoholic beverage. It is unfortunate that individuals whose moral and physical organization is such as renders them most liable to suffer from the effects of alcohol are by that very fact most prone to its temptations, and hence contribute largely to the subjects of the dyscrasia. These individuals are found amongst the ignorant, the very poor, and especially amongst the neurotic subjects of all classes of the community. Due consideration of this fact cannot fail to establish the responsibility of those belonging to these classes, in two respects:

first, that of example; and, second, that of personal restraint from the standpoint of heredity. No argument can be more potent than that derived from the consideration of the laws of heredity - at least so far as the dangers of indulgence in narcotics is concerned. Furthermore, the influence of heredity among races addicted to alcohol has not yet perhaps attracted the attention which it deserves. It is probable that much of the tolerance for alcohol exhibited by individuals, families, and even nations, is to be accounted for by heredity; and it is even still more reasonable to suppose that most of the evils and crimes that befall alcohol-drinking communities and individuals are due, directly or indirectly, to the abuse of this intoxicant.

ACUTE ALCOHOLISM.

The drunken condition of itself requires little or no treatment - the spontaneous recovery, which is usually sufficiently prompt and permanent, being explained by the rapid elimination of the drug, and the transient nature of its pathological effects in excesses which are not repeated or prolonged. The physical suffering and mental distress following unaccustomed excesses are of salutary influence. Under certain circumstances a powerful effort of the will is sufficient to control, at all events for a time, the more moderate effects of alcohol. A similar result follows the use of cold douches, the Turkish bath, and full doses of certain preparations of ammonium - especially the acetate. Profound alcoholic coma requires frictions, artificial warmth, and stimulating enemata (e.g., turpentine, salt and hot water, an ounce to the pint), hypodermic injections of strychnine and atropine in minute doses and occasionally repeated, inhalations of ammonia, and occasional cold affusions followed by brisk frictions with warm flannel, and faradism of the muscles of respiration, as well as frequent doses of strong coffee. In alcoholic stupour of an acute kind the patient may be left to himself, care being taken that the clothing is loosened, and that the position assumed is such as to prevent paralysis from local pressure upon some nerve. Alcoholic coma, if of moderate intensity, may be managed in the same way. Chloral, in twenty-grain doses, repeated at intervals until sixty grains have been taken, usually serves to arrest - or at all events to moderate - the paroxysms which occur in the convulsive form of acute alcoholism, - care being taken to control violent paroxysms by the inhalation of chloroform or ether. The chloral may be given by the mouth, or in double doses by the rectum. If, by reason of the weakness of the circulation, chloral be inadmissible, paraldehyde may be substituted in doses of from half a drachm to a drachm, and repeated at intervals of from one to two hours until the patient is quiet.

In poisoning by lethal doses of alcohol leading to collapse, the stomach should be immediately emptied by the tube or pump, and washed out thereafter with warm coffee; but these cases usually, despite all treatment, prove fatal. In the absence of the stomach-tube, emesis may be provoked by the use of mustard or sulphate of

zinc,or by the hypodermic injection of apomorphine.The patient must be placed in the recumbent position and surrounded with hot blankets.The cold douche may be occasionally applied to the head and face,and the muscles of espiration may be excited by faradism. The flagging heart may be stimulated by occasionally tapping the precordia with a hot spoon,and hypodermic injections of digitalin may be employed.Artificial respiration and friction of the extremities may also be required,and inhalations of ammonia may be used.A rule, admittig of no exception,in all forms of alcoholism is to at once withhold the drug in every form and in all doses.If,under special circumstances,great nervous depression and flagging circulation seem to call for the use of alcohol in small amounts,it is far better to substitute other drugs.It is a good plan to commence the treatment with a brisk purge.The frequently repeated administration of beef-tea hot,or rich broths in small doses with capsicum,and the use of various preparations of ammonia,will prove useful according to the enthusiasm with which they are exhibited and the skill and discrimination with which they are selected for the particular case.

For the treatment of delirium tremens the indications are preactically the same as in ordinary delirium with great exhaustion.In nearly every case it is necessary to exercise a certain amount of physical restraint;and this is best accomplished by fastening the patient in bed by means of sheets drawn formly over his body or over his limbs,being careful in doing so that his respiration is not impeded.It is of cardinal importance that the patient be supported in every possible way.Digitalis should be given in doses of from eight to fifteen or twenty drops at intervals of four hours, the condition of the pulse being the guide in this respect.At the same time strychnine should also be given,in doses of from one-fortieth to one-twentieth of a grain every four hours,hypodermically.Some judgment,however,is necessary in this procedure,as the insertion of the syringe frequently increases the terror of the patient and enhances his hallucinations.In this condition milk,eggs,beef-tea,beef-peptonoids,and other extracts of meat should be employed - in as large quantities as it is possible to administer,and at short interwals,say,of one to two hours.Here also it is very necessary to consider whether alcohol should be given or not:it is purely a matter for one's own decision based upon the indications of the case.Most authorities consideriit necessary to give a certainamount of it,and some of them at times give it freely.It will be found, however,that in many cases in which forced feeding is practised,and in which full doses of strychnine and digitalis are being adminsitered,the alcohol can be limited to ralatively small amounts or abandoned altogether.It may be given in full doses when the pulse becomes feeble and very frequent,in spite of other measures.The desirability of sleep is a very strong indication in these cases.A combination of bromide,morphine,and chloral will give the most satisfactory results. It,should contain a maximum amount of the bromide,and but moderate amounts of the two other drugs named. My

own preference is for the bromide of ammonium, which I am in the habit of giving in doses of one drachm; the chloral I am accustomed to exhibit in doses of fifteen grains, and the morphine in doses of a quarter of a grain in these cases. In point of fact, sleep is induced with the greatest difficulty in these patients, and especially in the beginning of the attack; as hypnotics sometimes do harm as well as good, they should not be too frequently repeated. The dose of the morphine may, however, be sometimes increased; but at other times opium itself may be substituted with advantage. Frequently also efficacious results are derived from moderate doses of trional (ten to twenty grains). It is, however, in many instances a failure; and then hyoscine hydrobromate (one-hundreth to one fiftieth of a grain) may be used, though in the hands of the writer it has not in this class of cases given the expected satisfaction. If sleep be difficult to induce, it is far better to tide over the restlessness by moderate doses of hypnotics than to push them excessively - especially as in the majority of cases sleep is quite readily induced on the second, and almost always on the third or fourth, day. Furthermore, in cases that are properly fed, and in whom strychnine and digitalis are used judiciously, sleep supervenes without the use of narcotics, as a general rule, when the maintaining of the feeding and rest until the attack is over is an easy enough undertaking. Should the case be complicated with pneumonia, the indication for a stimulating and supporting treatment is very strong, and here large doses of alcohol are permissible.

CHRONIC ALCOHOLISM.

The fundamental therapeutic indication in chronic alcoholism is the withdrawal of the poison - no matter what may be the prominence of particular symptoms or group of symptoms, whether they indicate derangement of the viscera, of the nervous system, or of the mind, and whatever their combination. My own experience has been that it is the best plan to effect the withdrawal rapidly or immediately. If no recent exacerbation has occurred, this can, as a rule, be accomplished without much difficulty; if, however, the patient is just passing through an alcoholic attack or has recently committed more than the usual excesses, the withdrawal will have to be more gradual (the alcohol being given only with the food) - the more so if collapse, mental confusion, delirium, and excessive prostration be present. The moral effect of a too prolonged or too gradual withdrawal is bad; and, as already stated, a withdrawal as rapid as is consistent with safety should be effected. Having decided the question, it is as well not to place too much reliance upon the drugs so much advocated by certain writers: for natural therapeutic measures are far more important, and lead to far more satisfactory results. Moreover, they are readily applicable to the underlying nervous disorders so commonly present in these cases. The use of any particular drug varies with each case, and depends upon the indications presented by the latter. If neurasthenic features be present and are

treated,if the general tone and vigour be improved,it is evident that the desire for stimulants will be lessened. In some cases it is possible merely by strict attention to hygiene,to matters of diet,the hours of sleep,and regulation of various functions,to bring about a favourable result;but in the majority of cases such simple measures will not be sufficient,and it is necessary then to institute procedure involving some degree of restraint.In certain cases,but in very few,the exaction of a promise,or the signing of a pledge,will suffice;but in the large majority of instances,according to my experience,this is of little lasting benefit.In this country at least,forcible measures of restraint - except in cases of notorious drunkenness - cannot be carried out;and there is at present no immediate prospect of certain legislation upon the subject,owing to the great and firmly-rooted prejudice against interference with the liberty of the individual.If the patient will only consent to restraint,then the matter is different;and much can be done by sending him to one of the many retreats specially conducted for the benefit of such individuals.Under the moral and social restraint of such inebriate asylums the patient is gradually led to discontinue the use of his deadly enemy.A far more expensive,though ideal,plan would be to withdraw the patient from his ordinary surroundings and institute a system of absolute isolation,placing him at the same time under the care of a specially trained nurse.This plan gives one the very best opportunities for proper treatment,as well as for the study of the underlying conditions of the disease;and it is almost invariably followed by the most gratifying results of sometimes a far-reaching and permanent character.The rest-treatment should be instituted in every case in which it seems practicable,and gives good results in many cases even when the patient is not markedly neurasthenic:for the isolation in a room with a special nurse constitutes the most effective means of restraint that can be devised.Its moral effect is of the very best.The victim of alcohol is,in fact,the victim of disease;and very often the relief obtained from various distressing symptoms by merely remaining in bed is so great as to be followed by a rapid decrease of the patient's desire for alcoholic beverages.It is advisable to place the patient in bed,not for days,but for many weeks,and at the same time to institute Swedish movements,electricity,and other such expedients as suggest themselves from time to time, or as indicated by the particular case.During this time it may be necessary to frequently administer small doses of calomel,and to follow the same by a saline purge,in order that the digestive tract may be kept in a satisfactory condition for systematic feeding.It is nearly always advisable to begin with a liquid diet - at first limited to beef-tea,broths,soups,and meat preparations generally.A milk-diet should be instituted as soon as possible.A great number of these patients insist that they cannot endure milk,that it increases the coating of the tongue,and that its ingestion is followed by nausea and loss of appetite;but,as a rule, it can be tolerated if proper precautions are observed. The simple expedient of adding a little alcohol answers

every purpose:for it is then readily tolerated by the stomach and acceptable tothe patient.At other times, instead of adding alcohol to the milk,our object is attained by diluting the milk with some carbonated water,such as soda-water,Apollinaris,etc.In other instances, again,it is a good plan to peptonize the milk.The cold process is generally to be preferred,inasmuch as the taste of warm peptonized milk is so unpleasant to the alcoholic that he will usually vomit it.It is desirable to add the peptonizing powder to the milk just before the latter is administered.Sometimes it is necessary to abandon the whole milk,substituting for it skimmed milk or buttermilk.With regard to the amount of the milk,it is best to begin with a very small quantity,say,three or four ounces at intervals of two hours.Many patients who cannot take milk in large quantities can ingest it in small amounts at short intervals,and digest it easily.The amount of the milk should then be gradually increased,an ounce being added to each dose daily:for it will soon be noticed that the quantity of milk formerly administered in the twenty-four hours is insufficient to satisfy the wants of the patient,- so that, as a rule,he becomes very hungry and accepts the small doses of milk eagerly,especially if the intestinal canal has been thoroughly cleared by the administration of calomel and salts.Before the end of the week,say,in four or five days,the patient may be allowed to partake of solid food in small quantities; this procedure will result inthe nervousness,due to the withdrawal of the alcohol,subsiding and the desire for the latter diminishing.His spirits also rapidly improve,he becomes bright and cheerful,and his depression disappears.The solid food in question may be allowed to consist of soft-boiled egg,tender steak,boiled rice,stale bread,etc. Little by little,the patient may be brought up to a full diet,the milk being at the same time increased.It will not be long before it will be seen that the patient is taking a very large amount of food,and that his condition is rapidly changing for the better.The patient during all this time is taking every day general massage and sponge,shower,or spray baths,while the muscles are stimulated by electricity,usually the slowly interrupted faradic current.As the case progresses,Swédish movements with resistance are added.Soon it becomes necessary to allow the patient to leave his bed for some little time each day,until he is up the greater part of the time at the end of five,six,or more weeks.As soon as this is the case,he may indulge in calisthenics and other room exercises;and,if all goes on well,open-air exercise may be taken in moderation.When the patient is obese,the diet must be regulated accordingly.Starches must be excluded in all cases,because of the gastric catarrh so commonly met with:but here,other fattening foods should also be avoided.Lean meats,fish,green vegetables,etc.,may be given.The mere fact of thr withdrawal of the alcohol markedly contributes to the reduction of the existing corpulence.Sometimes certain symptoms call for medication, so that the entire treatment cannot be conducted without the use of drugs.Certain troubles arise upon the witdrawal of the alcohol - such as markedly increasing nervousness,insomnia,and headache.The latter

indication can usually be met with the administration of the bromides, in doses of from twenty to forty grains every four hours. The insomnia should not be treated with chloral, which is far too depressing in its action upon these cases; and morphine is a remedy which has its exhibition not unaccompanied by risk. Trional (gr.xx) may be used; and if it does no good, sulphonal (gr.xv - xx), or hyoscine hydrobromate (gr.1/100 - 1/60) may be exhibited instead. The gastric catarrh which is often so troublesome in these patients must also be taken into consideration, both as regards diet and treatment by drugs. During the first week or ten days of the treatment, small doses of saline laxatives are frequently of service. Nitrate of silver (gr.¼), combined in pill form with the extract of hyoscyamus (gr.¼), and administered daily half an hour or twenty minutes before meals, has usually a pleasing effect. Occasionally, however, lavage is necessary, though this, even in severe cases, need not be continued very long. Sometimes the morning sickness and nausea of chronic drunkards is very troublesome; but, as a rule, it readily subsides. In certain doses small doses of calomel are indicated, and in others sodium phosphate can be given with advantage. The latter is best administered, in doses of fifteen grains in hot water, early in the morning; but at other times it may be given in an effervescent solution, and repeated several times daily. Drugs that are tonic, stimulating, or possibly antagonistic to the action of alcohol constitute a third class of medicaments. Some of them are certainly of value; but it cannot be too strongly insisted that they should not constitute the main factor of the treatment of alcoholism. It is unfortunate that to these more than anything else attention has been directed by medical writers and by the advertizing pretenders of the so-called specific cures. At the best they are merely adjuvants, and, if employed at all, should be selected and adapted to each individual patient. Strychnine is the drug most commonly employed; and it is generally given hypodermically in the form of the nitrate. As a rule, it should be given in moderate doses - say, one-fiftieth to one-fortieth of a grain three times a day; although occasionally much larger doses - one-twentieth of a grain or one-fifteenth of a grain (Dana; - Post-Graduate, New York, July, 1896) - may be exhibited. It is contra-indicated when there is evidence of nerve-cell degeneration, symptoms of renal or hepatic disease, as well as when the patient is very excited or delirious (Combemalle; - Gaz. Hebd., 1897, No. 39). In very large doses it is apt to overstimulate and increase the nervousness of the patient. There can be no doubt that in the majority of cases strychnine is beneficial, and that it markedly diminishes the duration of the period of withdrawal, and may even tend, as is claimed by Phelps (Med. Fortnightly, St. Louis, 1895, viii) to impair the appetite for alcohol. Though I have never experienced such a valuable and specific action in the case of this agent, it is - especially in moderate doses - an excellent tonic. Atropine is another drug that much has been claimed for. In many cases of alcoholism its stimulating properties are of great service; and it appears to lessen the depression caused by the withdrawal of the alcohol, and in the same way that strychnine does.

Furthermore, it seems to allay the depressing epigastric and sinking sensations from which alcoholics suffer, and in a manner that is very gratifying to the patient. It should be administered hypodermically, in doses varying from one-hundreth to one-fiftieth of a grain, three times daily, and preferably with strychnine. The drug is especially valuable when there is marked depression with coldness and clamminess of the extremities - by combatting which symptoms its affirmed specific action probably results. Indeed, Carter (Med. News, March 9, 1895) goes the length of asserting that atropine, given three or four times a day, will produce a great distaste for alcohol in from one to five days; that whisky becomes repellant as regards both sight and odour, and that its taste becomes intolerable and produces nausea. Clark (New Orleans Med. & Surg. Jour., Vol. xxiii, p. 721) looks upon the combination with strychnine as next thing to being a positive specific; and he maintains that while strychnine acts as a nervine tonic, the atropine has a special aptitude for decreasing the craving and appetite for alcohol. Alcoholic patients can with advantage at times be given one or other of the general tonic preparations such as arsenic, iron, and the bitters. Iron should be given only in the form of the peptonate, and preferably in association with manganese. Arsenic, if given at all, should be in the form of liquor arsenicalis and, moreover, well diluted in case the gastric catarrh, almost invariably present, should be aggravated. The bitter tonics should never be prescribed in the form of tinctures: usually their exhibition in pill form answers every purpose. It is within the memory of most of us how the "bichloride of gold" was vaunted far and wide by advertizing pretenders as a specific for alcoholism. It is really a combination of gold and sodium, and is also almost inert - its action being that of a very feeble tonic and alterative, unless given in very large doses when it acts as a decided gastro-intestinal irritant. It is very probable that the virtues attributed to the so-called "bichloride of gold" can be referred to the concomitant use of strychnine and atropine: in my opinion, this is the real basis of the cure. Still, there are not wanting medical men of considerable practical experience in the treatment of alcoholism who ascribe to it not only peculiar specific properties, but also declare that it brings about refreshing sleep and other equally remarkable and desirable phenomena. The use of apomorphine, or of other nauseants, in the treatment of alcoholism is to be strongly condemned as unscientific. It is, however, occasionally used, in the systems of treatment in which the patient is allowed all the alcohol he desires. If, in spite of the administration of strychnine and atropine, the patient continues drinking, apomorphine, in doses of one-tenth of a grain, is given hypodermically at such times as the alcohol is taken. Likewise one cannot too strongly condemn the plan of substituting some other drug - such as morphine, cocaine, or chloral - for the alcohol as the latter is withdrawn. It is also important to remember that the patient should be kept under treatment as long as possible; and after he leaves the immediate care of his physician, he should be under the

supervision of a well-instructed nurse.As a rule,when a subject of alcoholism has been properly treated,and for a sufficiently lengthy period,the tendency to relapse is comparatively slight.It is extremely important, however,in the after-treatment to guard against nervous or physical strains of any kind.Relapses are not infrequently to be traced to indiscretion in overwork,or to taking part in social functions with the attending loss of sleep and the temptation to the convivial use of wines and liquors.The danger of depression caused by the use of tobacco,and the consequent craving for stimulants, should be specially borne in mind.The greatest difficulty is,of course,experienced in the treatment of those cases in which there is a marked neuropathic taint.Especially is this the case with patients in whom the drunkenness comes on in spells,or in well-defined attacks - attacks which probably correspond to waves of emotional depression or hypomelancholia.The indication for physical exercise - especially in the open air - is here very great;and it is very necessary to do all possible to keep the patient's system at as high a physiological level as possible.

HEREDITARY ALCOHOLISM.

One can scarcely do anything to overcome the vicious propensities of the descendants of alcoholic parents:for the question is amongst the most difficult problems of education.The recognition of the cause of evil traits manifested in childhood and youth may be something to avert dangers commonly unsuspected.At the best the outlook is not cheerful.It is only when the actual alcoholic propensity is apparent that one can interfere - when some drunken act presents the individual for treatment.

DIPSOMANIA.

During the drunken attack it is very necessary to take steps to prevent the patient from doing himself or others some injury,and,if possible,to avert the squandering of some of his property.If the excesses are of such a degree as to render it practicable,the same treatment must be carried out as in cases of acute alcoholic mania and delirium tremens.The various drugs that are recommended for the alcoholic condition have been already noted.Hydrotherapeutic measures may also be used with advantage;and the influence of a well-regulated hydropathic establishment is much more favourable than that of an institution specially devoted to the treatment of alcoholism.One cannot help suspecting that in the latter the moral atmosphere is apt to be bad,that the patients support each other,and too often conspire in sedret to obtain that which is denied them openly; or,if the discipline is too strict for this,that they plot together to obtain their liberty,react unfavourably

upon each other in the matter of shame and self-respect, and sympathize with each other in their enforced confinement. Asylums for inebriates are suitable for few dipsomaniacs in the early stages of their vice; indeed, the management of these cases is among the most unsatisfactory of medical problems; and the difficulty is increased by the latent character of the mental disorder between the attacks. Even when such patients voluntarily enter hospitals for the inebriate, it is not easy to retain them there sufficiently long to derive any permanent benefit. The attainment of the ideal would lie in securing "an island where whisky is unknown; guardianship, combined with authority, firmness, attractiveness, and high, bracing moral tone; work in the open air, a simple natural life, a return to mother Earth and to Nature, a diet of fruits, vegetables, bread, milk, eggs, and fish, no opportunity for one case to corrupt another, and suitable punishments and deprivations for offences against the rules of life laid down. All these continued for several years in each case, and the legal power to send patients to this Utopia for as long a period as medical authority determines", the patients being willing or unwilling to submit, would also be needed to secure the desired results. Finally, special symptoms, such as neuralgic pains and headaches, must be relieved as they occur; and one must be on the look out for signs of actual organic disease, either of the nerve-centres or of the peripheral nerves. These, of course, will demand - like complications occurring in the course of any other malady - various additions or modifications of the general plan of treatment, which all through must be based upon the sage and sound plan of rest.

Hypnotism was some years ago suggested as a mode of treatment - especially by Forel (Münch. med. Woch., 1888, xxxv, 431-433). Hypnotic suggestion has been highly spoken of by some as quietening and preventing the craving for drink; but, apart from the many objections that can be urged against this method of treatment, it is so often a failure that I neither practise it nor recommend it. I have studied a large number of reports given by medical writers of authority on hypnotism, and cannot from their evidence, when compared with the actual state of things in the surrounding population, extract any proof of the true abiding usefulness of hypnotism in the treatment of alcoholism. The hypnotic mental unsettlement and impairment of will, as well as the influence which the hypnotist can, if he so desire, cultivate and exert over many of his subjects, constitute in my opinion a fatal barrier to the ordinary employment of hypnosis in alcoholic persons; yet, it is only fair to add that successes have been claimed by some. Hypnotic suggestion in this malady has been applied for two purposes - one to suggest limited drinking, as by Liébault (Thérap. suggestive, Paris, 1889) and Bernheim (De la suggestion et de ses applications à la thérapeutique, Paris, 1888), which I consider altogether a mistaken purpose; the other, as by Forel (loc. cit.), to suggest entire abstinence, which same cannot but be regarded as the essential object to be aimed at. For some time after entering practice I used to be a

somewhat enthusiastic believer in hypnotism therapeutically, but a brief experience of the method soon showed the uncertainty, unreliability, and resulting brain and nervous disturbance so plainly, that I had no alternative but to abandon my faith in it absolutely.

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HISTORIES OF CASES DUE TO ALCOHOLISM.

Case 1.

The father of this patient - A. T., aged six years - after entertaining a party of friends to dinner, committed the indiscretion of leaving both the boy and the decanter alone together in the dining-room. The lad appears to have forthwith possessed himself of - according to the father's statement - at least a gill of the whisky and promptly consumed it.

When I saw the case about an hour afterwards, the boy was unmistakeably delirious, raving, and restless. The pulse was quick and weak, and the pupils dilated; and his condition seemed bordering upon collapse.

Fortunately, his father had given him a tumblerful of salt-water before my arrival, so that vomiting commenced in about five minutes after I entered the house, and the use of the stomach-pump was therefore not necessary.

The patient gradually recovered; and, under carefully-regulated doses of aromatic spirits of ammonia and tincture of digitalis, he was running about as usual in the course of a few days.

Case 2.

G. A., a boy of nine years, consumed about four ounces of undiluted whisky, and very soon showed the well-known symptoms of acute alcoholic poisoning, being in a state of collapse and coma by the time of my arrival at his residence.

In spite of a very careful and thorough washing-out of the stomach, no improvement was observed; and having in the meantime sent an urgent message home for digitalin and atropine, I injected full doses of this combination hypodermically.

The pulse, which hitherto been quick, weak, and irregular, now showed only some indefinite signs of temporary improvement; and the patient died, within two and one-half hours after the ingestion of the poison, from cardiac syncope.

Case 3.

F. L., aged fifty-two, and a miner by occupation. This man appears to have been drinking for a week, and one day had taken a very large quantity of alcohol in the form of whisky and rum. Very soon afterwards, he fell down in the street in a state of collapse, and had to be carried on a stretcher to his residence.

When I saw him, he seemed to be suffering from a considerable amount of nausea, but had not been able to

eject his previously-ingested food from his mouth. This I did for him, however, with my finger, and at once instituted the usual manipulations with the stomach-tube.

He showed little or no improvement with this, and I again tried the hypodermic injection of atropine and digitalin as in the previous case.

His pulse now gradually gained in strength, and from 130 it soon came down to 106. Encouraged by this, I gave him a hot saline enema with an ounce of sal volatile added thereto; and in about an hour he was able to look round and speak incoherently. With the aid of strong coffee and external heat - especially over the abdomen, he gradually recovered.

I kept the patient in bed for three days; and he was allowed nothing but a little soda or lime-water during that time, - now three years ago.

I am very pleased to record the fact that this one-time notorious sot has been a total abstainer from all kinds of alcoholic beverages ever since the illness above described.

Case 4.

L. H., a married woman of forty-two years of age, suffered considerably from dyspepsia; for this she had long been in the habit of taking alcohol, which agent she credits with affording her at least temporary relief from the existing epigastric discomfort.

The patient appeared to be very thin, emaciated, and extremely neurotic, as well as untruthful. Her tongue was furred and dry, and she complained of flatulent distension, lack of appetite, morning sickness, and occasional bilious attacks.

I found her stomach dilated and slightly tender to pressure. Indeed, I am of the opinion that, in the vast majority of cases similar to this, there is usually gastric dilatation - the continued irritation of the organ by the alcohol probably lowering the activity of and tone of the muscular fibres, with consequent relaxation thereof and gastrotympanitis.

The heart showed accentuation of the first sound, and an occasional irregularity in rhythm. In addition to this, the patient was sleepless and restless at night.

One night her husband came for me (about 2 a.m.), and said that his wife had "gone mad". When I reached his house about a mile away, he informed me that she had, at 1 a.m., got suddenly out of bed and rushed outside in her night attire. He at once gave pursuit, and found he struggling to climg up the framework of an adjoining coal-pit.

As the patient was certainly suffering from acute hysteria, bromidia and chloral were administered; this occasioned the desired sleep, and she awoke next day apparently as well as usual.

She has not had another attack, but I am of the opinion that she drinks as much as ever. Her chronic alcoholic condition probably accounts for the fact that she has never had any family; and, but for the abortions for which I attended her eight years ago, one might very well consider her case as one of alcoholic impotence.

Case 5.

M. D., aged sixty, a widow, complains of periodical attacks of biliousness accompanied by colicky pains in the epigastric region.

The local merchant informs me that she purchased from him regularly at least a pint of whisky a day, and that sometimes he has known her to consume twice that quantity in the twenty-four hours.

She is nervous, easily excited, and apprehensive of her condition. Here also the stomach is dilated, just as in the previous case. On two occasions she had suffered from marked jaundice, but with little or no pain accompanying it. Headaches were lsedom absent, and for two or three days during the attack she is very tremulous.

Rest in bed, deprivation of all alcohol, and milk-diet - aided by powders of bismuth, soda, and rhubarb - invariably and speedily allay the sickness; and I have always found great relief to follow the application of mustard to the epigastrium.

As the acute symptoms pass away, a mercurial pill (gr.v) at bedtime, followed by a saline in the morning, helps to clear up the hepatic insufficiency; and later on a general tonic has a satisfactory outcome.

I have frequently observed that the wet-pack is extremely helpful for the insomnia usually present in such cases as this.

Case 6.

J. C., aged forty-eight, a married woman whose general appearance is one of stoutness. The face has a puffy appearance, the cheeks showing venous congestion and congestion of both arterioles and capillaries.

She has suffered from rheumatic fever; and endicarditis is present - especially of the mitral valve. She says that she commenced taking alcohol for her cardiac condition, and developed an inordinate craving for it only at certain times. She would not touch it for a month or two, and then for a fortnight she was a confirmed dipsomaniac. She would even go out through the window in her night attire, beg alcohol from whomsoever she met, and stay in any hovel as long as ever the inmates thereof would give her whisky.

I had her confined in a home for inebriates for eight weeks; one her return she conscientiously abstained for eight months, but is now just as drunken as ever. Furthermore, the cardiac condition is gradually becoming worse, and she is developing marked dropsy in the extremities.

Cardiac medicaments appear to have little or no effect in such a case, and any little benefit derived from them is entirely destroyed by the next alcoholic debauch.

Case 7.

J. F., aged thirty-one, a draper who had, until he was dismissed for drunkenness, held a good position in his trade.

It appears that, after drinking for about ten days, he would show signs of restlessness, and also of marked irritability on the slightest provocation: in fact, he

used to strike his own widowed mother on such occasions. He sleeps badly,if at all;and he suffers from the usual gastric troubles,and has little or no appetite. Delirium soon appears,and walks up and down the room from sheer inability to repose.He seems shaking all over;and he is in living dread of everything and everybody he may see or imagines he sees,thinking they are relentlessly pursuing him to his destruction. In short,he is ever wakeful and suspicious.

I kept him in bed,withdrew the alcohol absolutely, and substituted for the latter milk and light soups; bromides and chloral were also prescribed.

I have also found in this case - after attending him on three different occasions for acute alcoholic delirium - that trional (gr.xx every two hours) very markedly relieves the insomnia.

The patient was subsequently run over by an engine, had both his legs severed from his body,and died from the accident.Needless to say,he was under the influence of drink on this occasion.

Case 8.

A. K.,aged thirty-five and a barman,commenced work as a miner after being summarily dismissed from his employment for drunkenness.

His face showed the typical acne rosacea;his tongue was flabby and heavily coated;he had no appetite, and was tremulous in his lips and speech.

I was asked to see him on account of pains,varying in severity from discomfort to agony,in the lower limbs,and accompanied by slight loss of power.I kept him in bed,and prescribed light diet and a mixture of bromides and tincture of nux vomica.The pains disappeared in a few days,he regained the efficient use of his legs,and,the alcoholic neuritis being completely cured, he was soon at his work again.

Case 9.

A. McD.,aged sixty-eight and a janitor,had been a tippler for many years,and never missed a day without refreshing himself with several glasses of whisky.

I was called to see him by his wife,who told me that he was suffering from rheumatism.The muscles of the lower limbs appear to have been the first affected; he was utterly unable to sleep,and could scarcely bear the weight of the bedclothes on his feet.The tongue was coated with a thick yellowish fur,he had no appetite, and the pulse was 98 and slightly irregular.

The pains became so much more severe that I had to increase the dose of the bromidia priginally prescribed,as well as of the tincture of nux vomica - the bowels at the same time being kept freely open with calomel and salines.

In spite of all this,he lost flesh rapidly,and could not even move himself in bed - the muscles of the chest and arms having become involved.Furthermore, he was most irritable,and it was with difficulty that his wife could get him to take his food.

I now considered it necessary to give hypodermic injections of the nitrate of strychnine (gr.1/15),thrice

in the twenty-four hours, for a few days - with the effect that the improvement was most marked, and the pains now experienced became much less severe and allowed him to partake of a sufficiency of nutritious food.

From thenceforth he showed weekly improvement - so much so, indeed, that now, with the aid of tonics and careful nursing and general regimen, he is able to go about; but, though he says he has never any pain, he does not give me the impression of having regained the full power of his lower limbs.

What struck me most in this case was the great atrophy of the muscles of the calf and thigh, as well as the marked arterio-sclerosi during the seven months covered by my attendance.

Case 10.

A married woman - A. P., aged twenty-six - complains of pain in the stomach, which she says is relieved by eating, but which readily returns.

She is markedly anaemic and extremely thin. She was recommended some tonic wines, and she - according to the best of my knowledge and belief - consumed no less than a bottle per diem for a considerable period. She then took whisky, which, she said, relieved her gastric trouble and eased her breathless condition.

She was nursing a child of six months when I saw her; and the child itself was then also emaciated, as well as suffering from gastro-intestinal troubles caused partly from neglect, and partly (in my opinion) by the mother's milk being deficient in nourishing constituents. I put the infant on the bottle, and it was successfully reared artificially.

I was able to persuade the mother to abstain entirely from alcohol; and, with the aid of bipalatinoids of iron and arsenic and strychnine, as well as regular intestinal clearance, she soon became quite well.

Case 11.

A. B., a miner of fifty-six years of age, and who had been so severely injured in the mine as to be unable to continue his employment thereat, opened a small shop opposite a public-house.

He had always been in the habit of taking a generous allowance of alcohol, but now he visited the tavern nearly every hour. He never suffered from delirium tremens, but at times had complete loss of memory. He ate nothing for a week on end, and during that time he would consume even a larger quantity of alcohol than usual - this procedure terminating in convulsive attacks of a very aggravated type. Such seizures occurred on three different occasions; and on the last one coma developed and he died in the midst thereof.

It is interesting to note that this patient had marked amblyopia, and that in time he could only with difficulty recognize an object distant ten yards. In full recognition of my duty in this case, I warned him time after time of his serious condition; but in a forlorn and resigned way he affirmed me that his reformation was now a matter of sheer impossibility.

Case 12.

C. W., a miner of twenty years, having partaken of a small hasty lunch one Saturday afternoon, hurriedly got into his Volunteer uniform, and did a route-march of twelve miles entailing a considerable amount of running and skirmishing. At the termination of these manoeuvres he consumed a large quantity of whisky; and, in the course of a few minutes, he very delirious and could not be restrained. His companions eventually got him home in a cab, and put him to bed, where I saw him half an hour afterwards.

The patient appeared to be in a condition of very great excitement; his face was flushed, he was perspiring freely, and had a rapid, full but feeble, soft pulse. He accused his companions of having fired a loaded rifle at him, and in consequence endeavoured to perpetrate acts of violence upon them.

Having washed out the stomach, I managed to get him to take a dise of calomel (gr.viii), which I followed with bromide of potassium (gr.xl) and chloral hydrate (gr.xx). At the same time cold applications were placed upon the head, and he soon fell fast asleep. The next morning he appeared to be quite well.

Case 13.

R. P., a policeman, aged thirty-nine. This was a most interesting case, and shows how quickly coma develops when a large quantity of alcohol, in the form of strong spirits, is drunk in a short space of time by one who is chilled with cold and much fatigued.

The patient was sent out to watch for a notorious poacher, and took up his position at the edge of a wood. He remained there all night in a perfect deluge of rain, and returned home in the morning very much fatigued and chilled by the cold and wet. He forthwith, and before taking any food, drank a tumblerful of undiluted rum, and soon became unconscious.

When I saw him an hour afterwards, he was very pale, had a thready pulse, and breathed stertorously. His condition gradually became worse, and he died within another hour.

Case 14.

A. F., aged twenty-nine, came to my surgery and affirmed that he was quite unable to follow his employment as a miner: for he felt tired in the morning, had no appetite, and frequently suffered from heart-burn, nausea, and vomiting. He had a peculiar dusky-yellow hue of the skin, and constipation was marked. He was gloomy and morose, and took a serious view of his condition. His tongue was furred (especially at the back) and tremulous, and he complained of a considerable amount of mucus about his throat causing him to feel quite husky at times. Furthermore, both hepatic and duodenal disturbances were added to the existing gastric catarrh.

The patient appears to have been a notorious beer-drinker, his average daily consumption being from eight to ten pints; and this appears to have continued with unfailing regularity for four or five years.

I got him to stop the beer-drinking;and,as in such cases as his it is desirable to act upon the bowels and liver, I gave him calomel,salines,and a pill composed of podophyllin (gr.ii),pil.rhei (gr.xxx),and extract of hyoscyamus (gr.xxiv) - the sum of the amounts parenthetically expressed being divided into twelve pills.

Under this course of treatment,the patient was soon well again:indeed,he gained over twenty pounds in weight during the next ten months.

Case 15.

G. B.,aged thirty-seven,came to me complaining of a stomach trouble. Her tongue was red,furred,raw,and the papillae prominent and warty.She complained of dryness in the mouth,uneasiness in the stomach (which she tinks is hunger),and marked thirst - especially after meals and at night.The appetite is easily satisfied,and very little food gives rise to a sense of distension and uneasiness.He also complains of palpitation after meals,and marked acidity frequently accompanies flatulence and eructations of partially-digested food.She says that she often becomes disturbed,hot-looking,and feverish,and admits that she is often cross and irritable.She invariably becomes listless and drowsy after a meal,cannot sleep when she goes to bed,and has what she terms "the fidgets".She complains bitterly of not being able to do her work.She told me that she consumed about two quarts of whisky per week - a fact which would well account for the stomach being dilated and tender to the touch.

I promptly put her on a diet diet,and ordered the food to be given in small quantities at regular intervals.

In similar cases I have always found bismuth and the alkalies most useful;and,as constipation was present,I gave her stomach and liver pill nightly;when the pain was severe,mustard plaster to the epigastrium afforded great relief.

Case 16.

Mrs.A. S.,aged forty-two,presented herself for treatment in the month of October,1904. Her tongue was flabby and furred;she said she had little appetite;and the digestion gave me the impression of being very feeble. At times she was very constipated,and so much depressed in spirits as to be actually melancholic. Her skin was gray and pale.The fur on the tongue was evenly distributed,finelt-grained,and pale.She did not complain of much thirst.Examination of the urine revealed an abundant presence of oxalates.

In cases such as this accompanied by a peculiar gloominess and depression of spirits,I have always found that the regulation of the diet is a matter of prime importance. I am a believer in the avoidance of rhubard,pears,and other raw fruit,as well as too much sugar or starchy foods.Greasy cooked meats,cheese, pastry,and highly-seasoned dishes are also inadmissible.

The patient confessed to me her custom of drinking about a pint of whisky a day,and even more ff she could get it.Alcohol was,of course,now forbidden,and her condition gradually improved;but she relapsed into her drunken ways again,and about a year afterwards committed suicide by drowning.

Case 17.

Mrs. J. S.,aged forty-five years. I was called to see this woman in January,1905;and she then complained of great uneasiness in the region of the stomach,with pain and tenderness which the slightest touch upon the syrface of the skin elicited.Nevertheless,on distracting her attention from the examination,I was able to press deeply without occasioning the patient any pain. This condition,she said,is often relieved by the taking of food;and there seemed to be a hypersecretion of the gastric juice during the time of the irritation.She was very much addicted to drinking brandy;and as her husband was often absent at sea as captain of his vessel,she was able to indulge freely in the vice without restraint.

It was after a single week's drinking that she would show such a condition as the above;and I have seen her at these times hysterical and vomiting freely - the food now seeming to come forth from the stomach unchanged,but mingled with more or less gastric secretion. On several occasions she refused to eat,and I had to overcome her reluctance by force.

In such cases one must have a thorough command of the patient;and,after talking the matter over with her husband,I had her placed in the charge of a strong-minded woman,who occasionally took her away for a change of air.

The result was that she stopped drinking;and after a long course of bitter infusions and quinine with the tincture of nux vomica,as well as large regular meals, she is now completely recovered.

Case 18.

Mrs. J. C.,a young widow. I was called in to see this woman in February,1905,and found that she had a severe haemorrhage from the stomach,together with localized pain in the epigastrium.As the bleeding was very profuse,she was very faint,and the pulse weak.

This being a case of gastric ulcer,I resorted entirely to feeding by the bowel for four days,and then allowed occasional sips of sterilized milk.In this way she rapidly made a good recovery.

This patient was also a brandy-drinker;and as her father,with whom she lived,had a public-house,she had many opportunities for taking intoxicating doses of that liquid daily.Being troubled with a primary catarrhal condition of the stomach,she said that she was always much relieved by the ingestion of a little brandy and soda:for which same she developed quite a craving. It is pleasing to record that she is now quite well and a total abstainer.

Case 19.

G. T.,aged twenty-eight and a grocer,came to see me regarding his stomach trouble in the month of March, 1905;and as I could not make a proper examination in my own surgery,I asked him to be in bed next day when I called upon him.I had long known that he was given to taking alcohol daily - especially in the evening, when he would sit with some friends and drink and

smoke until the morning.

I found on examination that his stomach was very much dilated,and in an hour-glass form;and it appears that he had the appetite of a glutton at times.The tongue was seen to be furred,the breath offensive,and a considerable amount of mucus about the back of the throat.On palpation,the first thing that struck me was the peculiar splashing sound due to the presence of air and liquid ;and this seemed most marked in the epigastric region,and extended below the umbilicus for some two inches.

Duly warning him of the danger of his condition, he promised to abstain altogether from alcohol and tobacco.I had his stomach washed out twice weekly;and keeping him on a suitable diet,both as regards quantity and quality,he improved very much and has not since stood in need of my professional services.Indeed,I understand that he has lately joined a lodge of Rechebites in this locality,which,of course,requires total abstinence from its members.

Case 20.

D. S.,aged thirty-seven and a barman,called upon me,in July,1905,complaining of having vomited blood. He said that this happened every morning at the time when he was regularly sick;when straining to empty the stomach,a mouthful or two of blood came up.Sometimes the colour of this was like that of coffee-grounds,and at other times it was bright-red.

His general appearance was that of a person with a congested circulation.He was plethoric,stout,and puffy;his skin had a clammy feeling,and he was sweating freely.No pulmonary disease could be discovered on examination.

He told me that he had always tippled,that he had initiated an increase in his daily allowance six months ago,and that from thence forth his present condition of haematemesis had gone on with more or less regularity.

He promised faithfully to abstain for the future; and I gave him a mixture of ergot and aromatic sulphuric acid for two days.Rest in bed,careful dieting, bismuth,and an alkaline mixture afterwards proved most serviceable.The patient never had a relapse.

I am firmly convinced that this was a case of follicular ulceration of the stomach,and entirely due to alcoholic irritation.

Case 21.

J. K.,aged twenty-seven,a joiner. I was called to see this patient in August,1905;and at my visit he seemed to be very restless and slightly jaundiced. He had had repeated evacuations of the bowels,but each act appeared to have been attended with considerable difficulty and inefficiency.I submitted the faeces to careful examination,and observed that they were gelatinous and contained many scybalous masses.

The patient admitted that he had partaken a mixture of various alcoholic drinks the day before,and at a time when he felt quite well.

Rest in bed,a mild aperient,followed by an

astringent mixture,were all necessary in his case;and he felt quite well in the course of a few days.

There is no doubt that he had an attack of enteritis.

Case 22.

C. L.,aged forty-four,a married woman. I was called to see this patient in the month of October,1905. She had a miserable expression of face,was emaciated and pale,had prominent cheek-bones,and said she felt sure that she had heart disease.The trouble,however,was in the intestines.She was often called to stool,and never seemed to get a satisfactory motion.What did come away was composed of a slimy material surrounded by hard knots,and was difficult to evacuate;shreds of mucus and patches were often also present,and there was general discomfort and uneasiness in the bowels.She confessed to having imbibed large quantities of alcohol for many years,and was especially given to taking large doses of rum:she affirmed that this liquid never failed to afford relief to her distress.

I had her bowels emptied regularly,and prescribed large enemata to be used slowly.Liquorice powder proved very useful for the constipation.She was also ordered small doses of Gregory poweder before each meal,and salol (gr.v) after the latter.The patient was given a milk diet at regular intervals.

She is now very much improved as regards the intestinal condition;but I strongly suspect that she is still partaking of rum,and shall not be surprised if a similar attack sooner or later occurs.

Case 23.

J. S.,aged forty-seven,a blacksmith. I was called to see this man,who,during the month of August,1905,had an attack of illness of which the following are the symptoms:

I found him in bed,and noticed that he was of a dark complexion.He complained of severe pain in the region of the rectum and in line with the colon,and this was increased on pressure.He had considerable pain when the bowels were moved,the contents thereof being of a brownish-green colour and stained with blood.There was also much mucus present,as well as shreds of inflamed mucous membrane.

I treated this case as one of a chronic dysenteric condition.He informed me that he had been drinking large quantities of beer during the warm weather - even as much as fifteen pints per day along with some whisky.

I put him on a milky and farinaceous diet,and kept him in bed.He was also given a mixture of ipecacuanha and opium,which same greatly relieved his condition and allowed him to be soon at work again.

Case 24.

J. A.,a housewife,aged thirty-three years.I received an urgent message to call upon this patient in September,1904,and found her in bed nearly doubled up with pain of an excruciating character.She was very

sick,and seems to have got rid of a small quantity of bile - during which time the pain increased,and was localized around the umbilicus.

The condition in question appeared to be much relieved by pressure.Hot fomentations and an opiate had a markedly sedative effect,and she was quite free from pain the next day.

I have no doubt that this colicky condition was the result of the alcohol she had taken,which I afterwards was of a very inferior quality.

Case 25.

J. K., aged sixty-two,a miner.I saw this man in February,1903.He had been a drunkard for years,and during that time has suffered considerably from gastric disturbances.When I saw him on this occasion,he had a pronounced yellowishness of the skin,as well as pipclay motionsHis liver was enlarged and tender,and dyspeptic symptoms were well-marked.He was apparently very much out of health,had a quick pulse,and was feverish. His drunken bout seems to have lasted for more than a week.

With rest,and the use of calomel (gr.iv),followed by a saline aperient and belladonna, the bile quickly reappeared in the stools;and his satisfactory recovery was largely aided by the mustard applications to the hepatic region and the milk-diet prescribed.

Case 26.

J. McK.,aged forty-eight,a lorryman.I saw this patient with a neighbouring practitioner.Being in bed, I examined the liver,and found it enlarged and tender to pressure.He had marked dyspepsia,and the conjunctivae were jaundiced.There was also much flatulent distension,and he complained of his clothes not meeting on him over the abdomen.He had a sallow and dirty appearance,and at times seems to have suffered from slight attacks of jaundice.Then the ascities was very pronounced,and on one occasion he had a slight haemorrhage from the bowels;accompanying the same were painful haemorrhoids.His breath has a curious offensive odour,and his gums were tender and easily bled.He appears to have been in the habit of drinking whisky and gin in ginger-beer every day at frequent intervals.

I only saw this case in consultation,but I found on enquiry that he did not do well.

Case 27.

J. B.,aged fifty-one,a publican.This patient is said to have been an habitual drinker of whisky and brandy for many years.He had been treated for acute alcoholic delirium on two occasions before I saw him in June,1907.His complexion was then sallow and jaundiced,and there was marked ascites and dropsy in his lower limbs.He suffered from marked gastric disorder, together with flatuent dyspepsia and sickness.In addition,he was very restless,and could only go about with very great difficulty.He is still alive,takes very little interest in what is going on,and sleeps most of the day in his chair.The heart sounds are weak and at times irregular,with an occasional murmur in the mitral area.

I tapped him on two occasions;and the first time drew off forty-five ounces of a fluid which was slightly bile-stained;the second time of operations there were no less than eighty ounces of liquid even more bile-stained than before.On each of these occasions he got temporary relief;and examining the liver,I now found it much reduced in size and free from tenderness.

I have had alcohol kept from him as much as possible,and have given him a course of pepsin,mineral acids, and milky foods.The desirability of attention to the bowels was duly recognised,and regular aperients given twice daily to produce watery evacuations.Cardiac tonics were given from time to time as indicated;and he he still under treatment,though gradually becoming worse.

Case 28.

J. McB.,aged fifty-six,a carter.I was called to see this patient sometime in the year 1902,when he complained of passing blood in his urine,as well as severe pain during the act of micturition.He indulged in frequent drinking bouts,chiefly of gin and whisky, and it was only after one of the debauches in question that there was any renal haemorrhage.The urine was quite clear between times,and he was also free from pain at such periods.The contents of the bladder were at first clear,and then mixed with blood;and as the pain experienced was over the regions of the bladder,I was of the opinion that he suffered from a catarrhal state of the bladder likewise.

The haemorrhage was easily controlled by a mixture of ergot and hamamelis;and the rest and careful dieting prescribed markedly contributed to his perfect recovery.

Case 29.

T. S.,aged thirty-two,joiner.This man had scarlet fever,and during the first four days,when the rash was still apparent,he got out of his bed in his feverish state,seized a bottle of brandy from the table,and consumed a pint of it during the night.Two days afterwards,his face was swollen and pale,and the eyelids oedematous.He now passed less urine (about eight ounces in the twenty-four hours),which was dark in colour, blood-stained,and containing albumin in large quantities.

With the application of mustard over the region of the kidneys,free evacuations of the bowels,and diaphoretic medicaments the acute nephritis soon passed away.

As the dieting in his case had been most carefully attended to,as there was no chance of a chill,and as the renal inflammation showed itself at the very beginning of the scarlatina, I am of the opinion that the renal mischief in question was entirely due to the large dose of alcohol consumed during the eventful evening.

Case 30.

J. L.,aged fifty-eight,merchant.I had occasion to see this patient,in the month of June,1902,for the relief of a fit. He was a confirmed drunkard,and had been so for many years.The fit in question was purely uraemic in character,and due to cirrhosis of the liver. It soon,however,passed away.He suffered from a catarrhal

condition of the stomach;he had a tongue with a drab-gray coating,no appetite,and vomiting without any obvious cause.His liver did not seem to be implicated much.The heart was enlarged,and the blood-vessels atheromatous.The breathlessness experienced caused the patient considerable distress;and the dry and harsh condition of the skin was very noticeable.He had a slight degree of irritation of the urinary tract;and, though the urea was much diminished,albumin was not present in any considerable quantity.He was able to go about with difficulty,the joints being thickened and swollen.

I prescribed iodide of potassium with carbonate of ammonia and arsenic,thinking that the same would relieve the circulation and kidneys;but I soon discovered that milk and farinaceous foods afforded much more relief.The indication for diaphoresis was promptly met with warm baths.

Though the cardiac symptoms are worse since I first saw him and the dyspnoea more acute at times,he is now in much the same condition as regards the other symptoms.

Case 31.

J. B.,aged 64. This patient suffered from the same cirrhotic affection as Case 30;but here the breathing was very much laboured,which I think was partly cardiac and partly renal in its etiology;the lungs were also slightly oedematous,and the pulse very tense and easily felt. The remaining symptoms were much as in the last case.

I saw the man for the first time in the month of January,1907,and he is still very much in the same condition as heretofore.He has consumed a very large quantity of alcohol daily for many years.

Case 32.

A. F., aged 49. I was called to see this man in June,1906.I had known previously (and had myself often seen him the worse for liquor) that he was a confirmed alcoholic.His speech was husky,and he suffered from much soreness of the throat.He was certainly unfit for physical exertion,and could only climb the local hills with the utmost difficulty and distress.

About a fortnight after I saw him,he became much worse and began to develop fibrillary twitchings; the dyspnoea underwent a marked accentuation,convulsions appeared,and - in spite of the usual sedative and heart-supporting medicaments - he gradually succombed to his illness.

Case 33.

Mrs. S., a widow aged thirty-six. I received an urgent massage to call upon this patient late one night,and on arrival found that she was suffering from palpitation of the severest form that it has ever been my experience to witness. One could easily hear the heart sounds a yard away,and the movements of the thoracic muscles were quite noticeable.

The patient was very anaemic and exceedingly nervous,but there was no organic disease of the heart

discoverable. As she had periodical drinking-bouts, she affirmed that it was only after the occurrence of one of these that she was afflicted in the way described. I was therefore of the opinion that the condition in question was brought about by the gastric disturbance resulting from the excessive doses of alcohol imbibed. For several days after the attack had passed away, she remained depressed and breathless; the duration of the attack was usually two days, and the severity of the same was much intensified at night.

Attention to the gastric condition, careful dieting, and cardiac and general tonics invariably proved of service; and she remained tolerably well until the time of the next debauch.

Case 34.

M. B., aged sixty-eight. This woman I have attended professionally for ten years: during which time she has frequently been given to excessive alcoholic indulgence. She is very stout, and complains of a sinking or fainting condition - especially after breakfast. The heart sounds, particularly the first, were very weak; and I have often found her in a breathless and fainting condition, in which same she is languid and inclined to dose: the excessive accumulation of fat around the heart probably accounted for this.

Proper dieting, with the avoidance of starchy and saccharine foods and fluids with meals, as well as spiritus aetheris nitrosi, proved of marked service for her condition; and of the same she was never without an ample supply.

It may further be noted that she is still much troubled with an eczematous eruption on the hands and feet, which is at times most obstinate to treatment, and which is accompanied with considerable pain. It is undoubtedly due to the alcoholism of the patient, as every other cause could be eliminated from the diagnosis.

Case 35.

D. F., aged sixty-five and a labourer, had prior to my first visit been long troubled with alcoholic neuritis. He had the distinct high-stepping gait, foot-drop, and wrist-drop; and, as he would not rest in bed, both hands and feet were at times much swollen; there was also marked anaesthesia of the lower limbs. His memory was very defective, and he could not remember anything that had occurred on the previous day. The arteries showed considerable thickening of their muscular coat, and the pulse was easily obliterated. His appetite was fairly good, and his urinary system appeared to be normal.

Nux vomica, iodide of potassium, and arsenic proved the most serviceable remedies in this case; and as the patient would not refrain from drinking, he appeared to be no better, if not worse, when I left the district in which he was residing.

Case 36.

J. S., aged forty-one, miner. This man suffers at times from acute alcoholic mania: on which occasions he

is wild and ungovernable, striked with his hands and feet at his attendants, and has his eyes rolling and his face flushed. I have often seen him drunk in the street, then take one of his attacks, and require to have the dangerous blows of his limbs controlled by the police and a rope. After a time he always calms down, and in a few hours is quite well again. In contradistinction to alcoholic delirium, he never showed any signs of tremors or hallucinations.

I have tried hypodermic injections of apomorphine (gr.1/38) in his case, which only made him sick on one occasion and led to a rapidly disappearance of the urgent symptoms.

Case 37.

H. N., aged fifty-six, grocer. I was asked to see this man, as his wife affirmed that he was becoming nervous and shaky. He had distinct muscular tremors, the hands and legs being very unsteady. He began to notice this first thing in the morning on rising, but he still had some control over the movements of both hands and feet. He also experienced a considerable amount of restlessness on first going to bed. He became very irritable, and suffered much from headaches and dizziness; he could not give proper attention to his business. Pains began to appear in the wrists and ankles, as well as down the muscles of the spine. He was often sick, especially in the morning, his tongue being coated and the breath foul. His face was red, and showed an acne rosacea of the worst form it has ever been my lot to observe; and the eyes were markedly congested. I duly informed him of his condition, and that the cause thereof was alcoholism. Having a shop licensed for the sale of alcoholic beverages, he said that he could not tell how much of the latter he took in the day, but thought that he had taken at least a pint of whisky every day for many years. Fortunately, it dawned upon him that total abstinence was the only hope; and it gives me pleasure to record that he has sold his business, and in this way is able to avoid the temptation for so long existing. Indeed, he is now quite satisfied with the condition of his general health.

Nux vomica and cinchona were the most useful remedies in his condition, and the bromides helped to allay the excessive irritation.

Case 38.

R. T., a baker, aged forty-six. This was in my opinion a most singular case. The patient appears to have been a chronic alcoholic for some twelve years, and within the last two years has been afflicted with the following symptoms:

Usually, after dinner or tea he would be seized with a burning or tearing sensation in the cardiac region, the impression given thereby being that his chest was undergoing a painful compression; furthermore, the pain appeared to advance to the region of the shoulder, and at times down the left arm. These attacks came on from one to three days after a drinking-bout, and increased in severity as time went on. During the attack the heart was slower than usual, palpitating, and sometimes

irregular;and the pulse throughout was tense and sustained.

I have no doubt that this was purely a case of angina pectoris,and due to the gastric disturbance induced by the excessive indulgence in alcohol.

Case 39.

J. P.,aged forty-eight,a hawker.This man was given to periodical alcoholic debauches,with seldom a longer interval than three weeks between each.

About four years ago,just after one of these bouts,he was suddenly seized one morning with a great constriction of the chest,and more or less marked suffocation. I was at once sent for,and his wife informed me that she had never seen him in such a distressing condition before:indeed,she firmly believed that he was dying from some cardiac affection.The dyspnoea was most marked,and the respiration was wheezing in character.He seemed to be suffering very acutely,and all the symptoms of a severe asthmatical paroxysm were most marked.

Nevertheless,the condition soon calmed down;and knowing his history,I paid special attention to the state of the stomach,and prescribed the usual medicaments according to existing indications.He has now an attack after practically every drinking-bout;but only when the symptoms are most acute do I see him,as he invariably derives relief from aromatic spirits of ammonia,bicarbonate of soda,and compound rhubarb powder, and calls for no other memedial agents.

Case 40.

T. E., aged fifty-six, a clerk. This was a case of athetosis,which,in my opinion,was caused entirely by the alcoholism of the patient.His family history was very good,and I am sure that the alcoholism in question was his one and only vice.

The spasmodic movements slowly,but surely,began in due course to show themselves,and were confined to the hands and arms - only occasionally affecting the face.He never showed any signs of epilepsy,but of late he has become puerile in his habits and inclinations.

A mixture of arsenic and iron,together with an occasional dose of bromide,seldom fails to give prompt relief.

Case 41.

A. S.,aged thirty-six,a butcher.This man suffered from what was most common in the case above recorded - viz., a form of laryngitis,which I have no doubt was due to excessive doses of alcohol of the maximum strength.

This patient's voice was altered both in quality and pitch,with subsequent hoarseness more or less marked. The entire larynx showed congestion - the vocal cords being also distinctly red in colour.He complained of a pricking sensation in the larynx,the hacking cough occasioned thereby greatly intensifying the local congestion,as well as the pain in swallowing and slight dyspnoea.The condition persisted for three weeks,and on two occasions there was a slight haemorrhage.

Inhalations proved of great service - especially

of pine-oil - and internally bromide of potassium and paregoric were very helpful, and four-hourly doses of the sulphate of quinine exerted the usual tonic effect.

Case 42.

J. D., aged thirty-six, a clerk. This was a case of chronic peritonitis, which I believed largely due to alcoholism. Here the abdomen was very much enlarged; and the patient had lack of appetite, constipation, and sometimes diarrhoea, feverishness being also an occasional accompaniment. On palpation of the abdomen, a small quantity of fluid could be made out, as well as rounded masses, which I have no doubt was due to the irregular thickening of the omentum.

Treatment consisted of the utmost carefulness in dieting, all foods likely to give rise to the formation of gas being avoided, and constiptation being duly controlled. Iron, arsenic, and quinine were the tonics prescribed, their exhibition being well justified in the outcome. Only once was it necessary to tap the patient, as he became on my recommendation practically a total abstainer.

Case 43.

This patient was a middle-aged gentleman much given to public speaking, and accustomed to partake of a considerable quantity of beer at dinner and several glasses of brandy at other times, though he was never what might be termed drunk from such indulgence. He had previously suffered from sciatic pains in the left leg, as well as a certain amount of anaesthesia in that member.

One day the patient developed great feebleness of voice; and, after bearing this for over a week, he was presented for treatment. The central nervous system appeared to be in a normal condition, but the left vical cord seemed to have entirely lost its function and tonicity.

Total abstinence was strictly enjoined and observed, electricity and topical applications were given, and large doses of strychnine prescribed; and the patient had completely recovered the use of his ordinary voice in less than five weeks from the development of the first symptom.

Case M4. C., aged fifty-eight, a married woman, had led a drunken life for the past fifteen years, and was always drunk hwenever she could possibly avoid being sober. She has been under my professional care for the last ten years, and was almost constantly during that time in receipt of professional attendance and medicine.

From a woman of ordinary proportions, she became very stout. Her face was bloated and congested, her eyes injected, and - what I have noticed in most cases of chronic alcoholism - she never kept her eyes fixed on mine for any length of time. Furthermore, she was most untruthful - especially regarding her drunken life.

About three years ago, she, having previous to this suffered from chronic alcoholic gastritis, had a severe haematemesis. When I saw her, she was lying on the floor in a deep faint surrounded by a pool of blood: indeed,

I though that she had committed suicide.Her pulse was quick,thready,and irregular.

This being a case of ulceration of the stomach, I kept her in bed continually,and fed her by the rectum for five days - only during the first two days of that period administering small pieces of ice by the mouth. She gradually showed signs of regaining strength,and the ulcerated condition gave little trouble after four weeks.Nevertheless,she was now very much emaciated,and quite different from her former self.

The haemorrhage in question appears to have been the means of reclaiming this drunkard.She then got such a fright that,since then,she has positively never tasted anything alcoholic. The congested state of her face has disappeared,and her house - which used to be in an extremely untidy and dirty condition - is in perfect order now.

This is the only case in my experience where the permanent cure of the alcoholism resulted from fright.

Case 45.

G. B.,aged fifty-five. This was a case of alcoholic amblyopia - a condition associated with one of the clinical experiences already narrated.

Here the disease developed very slowly - the vision being only gradually impaired,and pain and inflammation entirely absent. The visual field was much encroached upon,and thereby limited. The abnormality in question was purely alcoholic in origin,as the patient was a non-smoker.

I persuaded him to abstain for six months,during which time the vision greatly improved.Unfortunately, he died afterwards of cerebral apoplexy.

Case 46.

T. S.,aged thirty-seven. This is the only case of pneumonia which I have attended of the purely alcoholic type.

Being a miner,this man was absent from work for three or four days every fortnight,drinking more or less continuously during that period. He did not show in any decided way the primary symptoms of an ordinary pneumonia.The thoracic pains - usually only occasionally experienced - were here very slight;and,though the cough was not troublesome,the expectoration was abundant and the sputum like prune-juice in appearance.He was very nervous,became delirious,and muttered words in an unintelligible manner.

It gives me great pleasure to record that the patient has completely recovered;and,though not a total abstainer,he has never once taken alcohol to excess since his attack three years ago.

Case 47.

A. S., aged forty-four, a merchant. This was a case of glycosuria, which I consider of alcoholic origin.He came to my residence complaining of gastro-intestinal disturbances;and,as I was already well aware of his great liking for beer,I demanded a

sample of his urine for examination,and discovered the presence of a considerable amount of sugar therein. Having duly informed him of the danger of his condition (it may be a pardonable exaggeration of facts of salutary intention),he promised at once to abstain from all kinds of alcoholic beverages. Three weeks later, his urine contained much less sugar;and ever since then, this substance has been entirely absent. The patient did not require any form of medicainal treatment.

Case 48.

J. M., a miner aged,thirty-two,suffered from pseudo-angina pectoris. After every alcoholic debauch he would complain of symptoms simulating the true form of the disease.At these times he is very much depressed and exceedingly apprehensive of his condition.

On examination,nothing abnormal could be discovered,and,during the three weeks of his enforced idleness, he gained sixteen pounds in weight.He appears to have had a violent temper when under the influence of alcohol,and his wife suffered acts of great cruelty at his hands on more than one occasion.

I always found that attention to the disordered state of his bowels helped his condition,aided by the usual sedative and tonic medicaments. The patient left the district,so that I have been unable to follow the case further.

Case 49.

J. R., aged thirty-two, a married woman with no family. During the whole course of my experience, I have always found that the majority of young women addicted to alcohoism have shown signs of some derangement of the reproductive organs,or of one or other of the pelvic viscera. This woman was troubled with a chronic endometritis and ovaritis. The pain at certain times was great,and she soon discovered that it was considerably relieved by a tumblerful of whisky and hot water. In time she became a confirmed drunkard,and her chronic tippling aggravated existing ailments,and made the pain more or less constant.

Fortunately,but not without a considerable amount of persuasion and earnest entreaty,I got her to remain in bed,and was thus able to deprive her of alcohol for four weeks,aided by an efficient nurse. I attended to the local condition,and gave iron and quinine as tonics.

It is gratifying to report that she is now a member of the local Salvation Army,has never since joining tasted alcohol,but lectures in public against it.Both she and her husband are very grateful to me for the result.

Case 50.

H. M.,aged twenty-eight, a married woman. This patient had been a great sufferer from an aggravated form of uterine prolapse,but had never sought medical advice for her condition. The pressure of the prolapsed uterus on the bladder and urethra had been a cause of frequent (and latterly painful) micturition.She had been recommnded by her friends to try gin,they affirming

that she was suffering from "gravel".She developed a great craving for this form of alcohol,and was at the time I saw her very much under its influence.

I caused the patient to be kept in bed for four weeks,hired a nurse to give antiseptic douches daily, and after three weeks of this treatment inserted a ring-pessary. The urinary trouble disappeared,as also all the other discomfort;and I am pleased to report that she is now a total abstainer.

Case 51.

M. S.,aged twenty-three,unmarried. This is the youngest female I have attended for an inordinate alcoholic craving. She appears to have been anaemic more or less since she was fourteen years of age. Along with the usual cardiac and tonic remedies she had been recommended,she had also been prescribed the much-advertised "tonic wines";and I have no doubt whatever that this form of alcohol has - especially amongst the better classes - been the cause of many cases of alcoholism. This girl kept house for her brother,and was with him in very affluent circumstances - the father having amply provided for both.

I discovered that she consumed about a dozen quarts of this wine every fourteen days:in consequence of which she soon showed signs of severe gastritis and hepatic disturbance,the same being much aggravated by the chronic anaemic condition.She has no appetite, and told me that for days together she had partaken of no other nourishment than the wine.

I duly informed her brother of her condition,and she agreed to enter a nursing-home for further treatment.There I had the wine stopped,and substituted for it rest,suitable dieting,and iron - under which she soon recovered.

The patient is now married,and few suspect how near she was to being an irreclaimable drunkard.

Case 52.

T. L.,aged forty,a publican,had suffered from hepatic and gastric derangements for several years,the same being probably due to alcoholism.He came to see me because he could not sleep at nights,and for weeks he told me he had not been able to close his eyes.He seems at this time to have taken a bottle of brandy to his bedroom every night,which he never failed to finish by morning - the only benefit derived therefrom being a few hours of drunken stupour.

I persuaded him to stop the alcohol,and was thus able to relieve his gastric and hepatic abnormalities. Unfortunately,the insomnia was most persistent;and,as I saw that he was beginning to fall away again and take his former doses of brandy,I arranged for him to take a sea voyage - giving him a letter to the surgeon of the ship in explanation of his condition,and requesting that alcohol be entirely withheld.

This voyage had a wonderful effect:after the second day out he was able to sleep well,and his appetite returned.He came home from South Africa two stones heavier,and - as he told me - a "new man".

I am of the opinion that a long sea trip would be,

under proper supervision, the means of reclaiming many of the drunkard of the better classes, and especially those cases where excessive doses of alcohol are regularly taken for the relief of insomnia.

Case 53.

T. B., aged forty-three, a joiner. This man had been a chronic alcoholic for years, and was only kept on by his employers owing to his great skill at his trade: indeed, they informed me that he was their best man when sober.

I was called to see him one day, and found him suffering from all the symptoms, including tenderness over McBurney's point.

I had hot fomentations applied over the region of the appendix, his condition gradually improved, and he was about again in about three weeks.

After being at work for a month, he had another drinking-bout, and immediately after this another attack of appendicitis, which cleared up under similar treatment.

It was only after a third attack, which also came on after excessive drinking, that I had him removed to a hospital; and there his appendix was removed.

I have no doubt that alcohol was in this case the cause of the recurrent attacks. The patient did not return to this district, so that I have no further notes on his condition.

Case 54.

P. S., aged thirty-eight, a miner. This was very marked case of arterio-sclerosis, which I attributed entirely to the excessive use of alcohol. The walls of the vessels were thickened, the pulse was of high tension, and there was hypertrophy of the heart. There were also persistent headaches, vertigo, and aphasia; and even in his case the arcus senilis was well-marked.

I was able here to frighten the patient, and he was abxious to avoid the disgraceful death which I said was sure to be the outcome of his present excessive indulgence in alcohol, if continued. He gave up the drink, nourishing and easily-digestible food was allowed in moderation, the bowels were duly regulated, and frequent baths were prescribed. I gave him sodium iodide for a fortnight, then discontinued it for another fortnight of nitroglycerine (two minims of a one-per-cent. solution gradually increased). He is still under treatment, but his condition is very much improved; and he is now taking the iodide and nitroglycerine alternately for fourteen days at a time.

Case 55.

G. O., aged thirty-eight, a labourer, who was accustomed to consume whisky in great quantity, came to see me complaining of all the symptoms of chronic laryngitis, which was very much aggravated during an alcoholic debauch. As he was a non-smoker, tobacco could not be an exciting cause of his laryngeal trouble. Indeed, he affirmed that he had no trouble with his throat until he came to take whisky undiluted five

years ago;soon after that,he felt husky in the morning, and his speech was always thick during the earlier part of the day.As the drunkenness continued,this condition gradually became worse - until,when I saw him,his voice was almost gone,and he was very much pained.

I had him kept in bed in a warm room properly ventilated. Inhalations were very useful at first,and a lozenge of guaiac proved serviceable later on. The regulation of the bowels was not neglected. I got him to promise to take alcohol in future diluted,if he found it impossible to remain a total abstainer.

Case 56.J. S.,aged thirty-eight,a painter.This man came to me complaining of a skin eruption on his face. It was an acne rosacea of fair intensity.As this patient had no gastric disturbance and was ~~not~~ given to the abuse of alcohol,I have no doubt but that the latter

was the cause of his facial disfigurement.It covered the whole of the nose,and spread well on to both cheeks.

I told him that I could not benefit his condition unless he abstained from alcohol in all its forms. As he was rather proud of his personal appearance when well,he promised to do so. I persuaded him to become a member of the local society of Rechabites,which is one composed of total abstainers;and,as this was three years ago,it is gratifying to note that he still remains true to his promise.Under the usual local treatment,the condition of the face soon improved,and in less than a year it was perfectly recovered.

So firmly am I of the opinion that acne rosacea cannot be properly treated unless the patient is an abstainer during procedure, that I always refuse to promise any success unless alcohol is abandoned;and in many cases in which this cannot be effected,the results of treatment have been far from satisfactory,only a temporary improvement being obtained.In such cases,too, it is very important that the regular action of the bowels be maintained,and that the diet of the patient be efficiently supervised.

Case 57.

H. N.,aged fifty,a merchant,has suffered for many years from acne rosacea.Indeed,I have attended him more or less for ten years,and found that treatment gave only a little relief at times. He is in the habit of leaving his shop at nights well under the influence of alcohol; and his face is literally covered all over the acne,and the cheeks are at times quite livid. He says that he cannot stop drinking,and of late he seems to have lost all pride in his personal appearance.

This is a case in which specialists have been consulted,but none of them appeared to have laid any stress upon the desirability of total abstinence. On one occasion he received a Pott's fracture,and he was in consequence confined to bed for a few weeks: during which time,and without any active treatment,his face improved very much - this being,in my opinion,due to all alcohol being kept out of his reach.

Case 58.

T. B.,aged fifty-two, a porter. In no patient does one find a chronic gastritis better marked than in an alcoholic.This man was a very typical case;and I have also found that gastric pain is more active in this alcoholic gastritis than in any other.There is a diffuse soreness,often amounting to severe pain occurring soon after meals;but I have also seen it present when the stomach is empty.The patient has constipation, and the stools are malodorous. He lost weight,and was somewhat anaemic.The urine was diminished in amount, had a high specific gravity,and phosphates in abundance. He had at times vertigo,with sometimes severe headaches and mental depression.He later on had to take to his bed;I was then able to keep the alcohol from him,and he almost at once showed signs of improvement.He left off drinking,and I was able to get him to attend to his dieting and bowels.He had been previously told that he was suffering from a malignant disease of the stomach; and he was so pleased with his recovery that he is now a total abstainer,and suffers from no gastric disturbance of any kind.

Case 59.

T. A.,aged thirty-four,a clerk. I am of the opinion that gastric dilatation is present in all cases of alcoholism of any duration;and in this case the condition in question was most marked.He appears to have been quite well until three years ago,when he began to take alcohol to excess.The tongue was furred and flabby,and the breath had a very unpleasant odour.There was a considerable thirst,and sensations of weight and oppression in the stomach after meals,and constipation was likewise present.The gaseous eructations caused the patient great distress,and at night his sleep was very much disturbed.

In this case I found attention to the diet of prime importance.Fluids I gave sparingly,and alcohol I tried as far as possible to exclude,as also carbohydrates and fats.The tender meats and farinaceous foods were of great benefit.

The patient made a satisfactory recovery,and being a total abstainer,appears to be as well and strong as ever.

Case 60.

S. E.,a middle-aged working man. I was called to see this drunkard last year,and found him complaining of the following symptoms:

Anorexia,belching of gas,epigastric distension, nausea,vomiting,and constipation.Jaundice was then noticed,and in a few days was very pronounced.It rapidly deepened,but was always of a bright-yellow tint.The stools were pipe-clay-coloured,and the urine contained much bile pigment.Though the temperature was slightly raised,the rate of the pulse was normal,though occasionally subnormal.The patient was always in a dull and drowsy condition. Physical examination showed that the liver was slightly enlarged,and a diagnosis of inflammation of the bile passages and gall bladder established.

I forthwith stopped the alcohol,and gave the

patient alkaline mineral waters instead.Calomel was administered in small doses,and followed by salines and powders of soda,bismuth,and rhubarb.The diet was duly regulated so as to be of a light,liquid,and easily-digestible character.

Case 61.

M. G.,aged fifty-four years. When first I saw this patient in December,1906, she complained of constipation,flatulence,loss of appetite,and a sense of pressure in the epigastrium.At irregular intervals she was troubled with bilious headaches and migraine.For several years she was much given to beer-drinking;I tried to persuade her to give it up,but could not effect my purpose.

Again,in June,1907,I saw her,and by this time she was very stout:her face was yellowish-brown,and the conjunctivae light-yellow in hue. She was now suffering from an attack of biliary colic,which came on two hours after each meal. Pains were violent and spasmodic over the hepatic and gastric regions,and they radiated upwards to the right half of the thorax.Respiration was laboured,the pulse was slow and hard,and the extremities were cold.The attack passed off and left her very jaundiced in appearance.Since the last attack in June, 1907,she has entirely given up alcohol,and has not experienced another attack.

I am of the opinion that the formation of gall-stones in this case was the result of a catarrhal inflammation of the stomach and bile ducts,which in turn was due to the excessive use of alcohol.I am also inclined to believe that the inflamed state of the several parts hindered the natural flow of the bile,and thus allowed the formation of gall-stones to take place.

Case 62.

T. S.,aged thirty-two,a draper. This was a case of biliary cirrhosis,and is only the second case that I have had occasion to attend. Here the liver was very much enlarged;there was no ascites,but marked jaundice. He was a notorious consumer of gin and whisky - especially at the week-ends.The spleen here was also very much enlarged,and he was at times very feverish - the temperature being for a few days as high as 103.F. He had pain in the region of the liver,with tenderness on pressure over the organ.His general health appeared to be very good,which was also the case as regards his appetite.Such a condition persisted for a considerable period,and during that time the strength was well maintained,and the patient not much reduced.

He is still under my care,and though I have got him to give up the alcohol,there is no improvement in his condition. I have given him calomel,a milk diet, and other forms of treatment,but with little or no success;and I have no doubt but that the lesion suffered from is the result of the large doses of alcohol from time to time consumed.

Case 63.

J. F.,aged forty-eight.This man had been a total abstainer upmto the age of forty-three,and from that time until two years ago he had drunk large quantities

of rum.He would be off his work as miner for two or three days every fortnight;and during the whole of that time he was under the influence of alcohol.About six months after he began to take alcohol to excess,he had a largish carbuncle on his neck which kept him from work for four weeks.Shortly after this,another appeared further down the back;it was much larger and deeper than the previous one,and he was off work with it again for eight weeks. It was only after the third one had appeared that I thought of alcohol as a cause.

He being so long an abstainer in early life,I had not much difficulty in persuading him to abandon the poison which was undermining his constitution.The virtue of total abstinence is now apparent in his continued good health.

I am of the opinion that the lowered vitality (afterwards rectified by tonics and a suitable diet) from the excessive use of alcohol was the predisposing cause of the disease in his case.

Case 64.

L. M.,aged fifty-four,a widow,had suffered for a considerable time with ovaritis and pelvic cellulitis, and soon learned that alcohol gave her temporary relief from the consequent pain.She soon became a chronic drunkard;and,as she had no one to guide or advise her, she went from bad to worse..

I was called in to see her one night,and found her suffering from the most violent form of palpitation it has ever been my lot to observe.It was accompanied with great oppression and precordial distress,and the beats of the heart's apex against the chest wall were most violent.She could only speak with difficulty,and her face was pale and covered with a cold sweat.Afterwards similar attacks used to come on after each heavy drinking-bout,and they lasted for from eighteen hours to as long as twenty-four.

I got her to abstain for some time,and during that period she had not even a slight attack.I found strychnine most helpful in this case;but as she has left the district, I am unable to ascertain her present condition.

Case 65.

S. T.,aged forty-two,a vanman.This was a case of cardiac irregularity,but without any organic disease of the heart being present;as he had given up smoking, excessive indulgence in alcohol was evidently the cause of his illness.Furthermore,there could not be discovered any renal or arterial trouble,and the digestive organs were not diseased.He was a great beer-drinker,and where he delivered parcels he would be treated to spirits,or receive money which he would forthwith spend on beer.

The irregularity here was both as to time of heart beat and power of same.The condition was always very much aggravated after a period of excessive drinking, and at that time a condition almost approaching angina pectoris was observed.

In this case I found rest of mind and body most helpful,aided by strychnine and the bromides,as well as regulation of the diet,and,of course,total abstinence.

Case 66.

J. L., aged thirty-six, a miner. I was called to see this man late one evening, as he was vomiting severely. I found him very much under the influence of alcohol, and it appears that the sickness suffered from was entirely due to an over-dose of whisky. When I felt his pulse, I must admit that I was very much alarmed at its frequency. Though it was quite regular and compressible and thin, it was over two hundred in the minute; but after the sickness had passed away and he was sober again, the condition did not seem to have left any bad effects.

I had him kept in bed and on the right side as much as possible, with the head low. Alcohol and tobacco were strictly prohibited, and in two days the pulse-rate was once more normal and he was quite well.

Knowing that he would not continue to abstain from alcohol, I requested his wife to send for me whenever he became drunk again; this soon occurred, and I found his condition exactly the same as on the last occasion. When he recovered, I warned him of the danger to his constitution; but he goes on drinking the same as hitherto, so that I from time to time have the opportunity of observing him with a pulse-rate that is difficult of estimation, and due entirely to debauch.

Case 67.

T. B., aged twenty-nine, a baker. This man has been more or less a drunkard ever since he attained his majority. He came to my residence one day complaining of a sense of heat and fulness in the perineum, and increased frequency of micturition attended with more or less pain.

On rectal examination, the prostate was found to be enlarged and tender. He had just had a drinking-bout of ten days' duration to celebrate the holiday season, and he was bordering on acute alcoholic delirium. There was no history of gonorrhoea, past or present, and the urinary analysis showed no abnormal constituents. Physical examination revealed nothing of importance.

Rest in bed was ordered, and a milk diet prescribed. Alcohol was strictly forbidden. Sitz-baths, at a temperature of 100.F., followed by a suppository of morphia (gr. $\frac{1}{4}$) gave much relief, as did also a mixture internally of tincture of belladonna and bromide of potassium.

In this case there was no urinary retention, and I could not discover any cause of illness except the prolonged drinking-bout, which brought about the acute prostatitis.

Case 68.

Note.- During the past ten years I have given alcoholism special attention, taking notes of cases as they have arisen. Like many others, I have tried the various so-called "specifics"; and it is my intention to show the results of my treatment in the following six cases which I have selected from about ten cases altogether. The other cases did not submit to the full course of treatment, so that I have discarded them, and give here only the histories of the cases which I consider the subjects of an extended experimentation. I will give

the two successful first, then the four failures:

J. P., aged thirty-two, a shop-assistant. This man was very intellectual and gentlemanly. He had lost two appointments through intemperance, and though anxious to reform, he was incapable of doing so. It was when he was dismissed from a situation that he came to stay with his mother here four years ago, and then was presented to me for treatment. He consented to undergo the following remedial course; and I had him confined to bed for a week, mainly to prevent him from obtaining any alcohol:

The first day I injected three times:

R/ Strych. Nitratis - gr. 1/12,
Atropin. Sulph. - gr. 1/120,
Aq. Dest. - m.x.

On the second day I thrice injected:

Strych. Nit. - gr. 1/10,
Atrop. Sulph. - gr. 1/200.

I continued this for four days; then I stopped it for four days, and finally gave the same treatment for another four days; I kept him indoors after that for a week.

This was my first case, and I was delighted with the result. Never has he had any desire for alcohol, and he has now obtained a very responsible situation with a large firm in the city. He has now been a total abstainer from alcohol for five years, and during that time he has increased in weight and is apparently in perfect health. Needless to remark, he is grateful for what he is pleased to call "the cure".

Case 69.

P. A., aged forty-five years, a manufacturer of nets. This man, who had a business of his own, has been much addicted to the abuse of alcohol for a number of years. His wife came to me, and begged that I might try and do something for him. I said that if he voluntarily submitted to treatment I might be able to help him. He consented, and underwent the same course of treatment as described in the pevious case; and I am pleased to record that the result was successful. He is now an active member of the Lodge of Good Templars, and has done much for the cause of temperance. It is now nearly four years since he joined.

Note.- These are, as stated, the only two cases that I have had any success with; but under the circumstances I am of the opinion that treatment of a similar kind, in a home or retreat for inebriates, would result perhaps in a certain percentage of cures.

Case 70.

J. F., aged thirty-nine, a joiner. This man was often described to me as a public nuisance: for he was drunk every week, and did not seem to have any control of himself when under the influence of alcohol. This had gone on for several years; and his employer, hearing of the success I had with the two cases previously described, requested me to try and do him some good. He consented, and I started with the same treatment as adopted in the previous cases; but I kept him in bed for ten days after I had stopped the medicine. He then went to work, and remained an abstainer for fourteen days; after that he started drinking afresh, and is now as bad as ever.

I am of the opinion that one need not try a second

as on the only one I tried I was not any more successful.The other three failures I had were similar to this, one being a female only.The period of total abstinence afte the"cure" varied from fourteen days to about three months.

Case 71.

J. B.,aged forty-two,a tramp.On the 27th of October a constable came to me,and requested that I hurry along to the police office to see a prisoner,whom,he said,had turned seriously ill there. When I was shown into the cell, I found him lying on the floor in an unconscious condition,breathing stertorously,and with his hands quite fixed.The pupils were much dilated,and his pulse was quick,weak,and thready.He gradually sank, and died within five minutes after my arrival.

My diagnosis in this case was one of extensive cerebral haemorrhage,as he had just been about fifteen minutes ill.He was well known to the police as a chronic drunkard,and was only released from prison the day before,being arrested the same night for being drunk and incapable.The two men who were in the same cell with him told me that he had been evidently quite well before the attack.I have no doubt that this fatal apoplectic attack was due to the excitement consequent on his getting more than ordinarily drunk on his release from a term of imprisonment.

Case 72.

J. E.,aged fifty-eight,a miner.I have noticed that in a great many cases diarrhoea is present,while in others constipation was marked.This man had been accustomed to taking excessive doses of alcohol every week-end; and on all occasions afterwards he had an acute attack of diarrhoea,with occasional vomiting of fluid tinged with bile.The motions are at first bile-stained,but become in time more colourless.As a rule,the pain in the abdomen is most marked,and the thirst is great.

Under the use of an astringent mixture the condition soon cleared up,and he was at work in two days;but the condition recurred again as a result of a drinking-bout ten days afterwards.

Case 73.

J. W.,aged thirty-three.This man was of a type very common in this district.He would remain teetotal for about three months,and then he would be off work for about three weeks drinking heavily most of the time.

About three years ago he came to see me about a crop of boils on the back of the neck,arms,and legs. Though not very large,they were extremely tender and painful,as well as of a throbbing nature.

Paying careful attention to dietary,regulation of the bowels,and adminsitration of a general tonic he began to improve,his convalescence being aided by pills of calcium sulphide (gr.i).

During the last three years he has had to consult me on some twelve occasions for a similar condition every debauch - each illness coming on after one of his

drinking-bouts.

I am of the opinion that the boils were caused by the sudden alteration of the dietary allowing the system to become overloaded with effete material.

Case 74.

J. S.,aged twenty-nine,a tinsmith.This man had for the past ten years been in the habit of indulging in alcohol to excess,and during the last two years has been much worse,until six months ago he became a total abstainer.

During the year 1906,he had three attacks of a condition similar to acute rheumatism:only the joints did not swell,but were extremely painful on movement and pressure.He had no rise of temperature,the urine was scanty and loaded with phosphates,and the appetite was bad,and the tongue coated and dry.The wrist and knee joints were the only parts of the articular system involved.He was usually off work about three weeks,and was thereafter able to be about again.

On warning him of his condition,he promised to abstain,and it is pleasing to note that he has kept his word.He has had no recurrence of the malady,which seemed to be some slight form of arthritis probably arising from the alcoholism.

Case 75.

M. S.,aged forty-one,a widow,suffered from what would be described in the text-books as nervous dyspepsia.The condition I have found much more common in females;and,in my experience,alcohol has always played an important part in its production.The patient was very nervous and excitable,had palpitation,drowsiness, sleeplessness,and nightmare,and it was with difficulty that she could concentrate her thoughts.She was often troubled with dyspnoea and cough.The pain in the gastric region was at times very severe and neuralgic in type, and she often secured relief from the ingestion of food. There was a localized tenderness over the region of the stomach,but she had no vomiting.Gaseous eructations were persistent and repeated,and flatulence was at times extreme.Hiccough was commonly experienced after meals. She seems to have been in the habit of taking alcohol to excess for some years,and it is only after her departure from temperance that the stomach trouble developed.Furthermore,as she remains in much the same condition,I have no doubt that alcohol is the primary cause of the persistency of the disease.

Case 76.

A. F.,aged thirty-four,a miner.This man,who suffered from acute catarrhal gastritis the result of repeated overindulgence in alcohol,is one of the most common cases I have ever had occasion to see.In this,as in all such cases,the onset was sudden,and accompanied by vomiting and epigastric pain.His face was pale,and the skin cold and clammy and covered with sweat.He showed a slight rise in temperature and had a quick pulse.He also complained of pain in the back and limbs,and appetite was entirely lost.There was great vomiting of partly-digested food.His urine was scanty and high-coloured.

Such a condition usually runs a rapid course;and rest and carefulness in diet have to be specially insisted upon;if necessary rectal feeding must be resorted to.I

have always found hydrochloric,nitrohydrochloric,and hydrocyanic acids very useful.

Case 77.

D. D.,aged sixty-four,a fisherman,complained of painful and frequent micturition.I had known him to be greatly addicted to taking alcohol - especially in the mornings,but at times he was off work for a few days with drink.I was called to see him shortly after a severe drinking-bout,and found that he had great pain over the region of the bladder.By rectal examination I was able to make out that the prostate gland was much enlarged and tender.He used to have similar attacks of pain every month or so,the same being accompanied by painful micturition and the voidance of only small quantities of urine at a time.

I have no doubt that the alcohol here was the means of irritating the prostatic enlargement and produced the frequent painful condition already described;when sober,he had no difficulty or pain whatever.

Case 78.

M. A. B.,aged thirty-nine,a married woman in affluent circumstances.The husband was a commercial traveller,and had occasion to be much from home.As a general rule,one finds that in all females addicted to excessive indulgence in alcoholism the craving is more or less constant and prolonged.In this case,however,it was different:for months would pass without her even tasting alcohol,and then she would break out for a week or ten days - the period of debauch ending with an attack of acute hysteria.She had headaches and giddiness,a peculiar feeling of constriction in the throat, and occasional palpitation.The attack usually commenced with a piercing cry - the patient then throwing herself on a bed or couch,and commencing to struggle about in a convulsive - but more or less conscious - manner.She exerts herself violently,and appears to be in a condition of great breathlessness.From this she passes into a state of emotional disturbance,and weeps bitterly for several hours.She has never touched alcohol for over a year,and during that time she has never had an attack of hysteria,while previously similar attacks would come on every three or four months.

Case 79.

J. F.,aged forty-one,suffered frequently from an illness that I have no doubt was caused by his excessive indulgence in alcohol.Every three or four weeks,he would have five or six days off work,drinking all the time; and about two days after he had stopped drinking a very extensive herpes labialis would appear,and it was of a very painful character.I have no doubt but that the condition resulted from some form of alimentary derangement caused by the over-indulgence in alcohol.

Case 80.

J. S.,aged twenty-four,a joiner,had for the past three years been a great source of worry to his parents. He was drunk,as they told me,every Saturday evening,and frequently had to be carried home.

About eighteen months ago,I was called in to see him suffering from a very severe epistaxis.This was on

a Sunday forenoon,and I was able to control it quite readily.

I am informed that nearly every Sunday,after a Saturday night's carouse,he had an epistaxis more or less severe,that it never returns during the week,and that he has no vomiting.I am of the opinion that the nose-bleeding in question is a result of the disturbed condition of the liver and stomach.

Case 81.

P. T.,aged forty-six,a fisherman.This patient was given to taking large doses of alcohol every two or three months,but during the intervals he would be a total abstainer.This state of affairs aapears to have gone on for a number of years,and about five years ago he came to me complaining of what turned out to be haemorrhoids.They were of the internal variety,and the rectal mucous membrane protuded for a considerable distance.He told me that they appeared after a heavy drinking-bout;but whether alcohol was the original cause of the piles or not,it certainly was the cause of most of the subsequent attacks.Indeed,he told me that he was really afraid to become intoxicated,knowing what he had to suffer afterwards from the piles;but the temptation was seemingly too great at times,so that he had time after time to endure his misery.But for this great fear,he would probably have been drunk at very frequent intervals,instead of abstaining for very long periods as at present.

Case 82.

J. T.,aged forty-eight,an ironmonger.This man had consumed a large quantity of wines and alcohol for a lengthy period;and,though he had suffered from gastric derangement at times,nothing serious appears to have occurred,until I was called in one day to see him,in the early morning,suffering from a most acute pain in the great toe.The toe was swollen,purpilish in colour, and shining - though the pain was out of all proportion to the external appearance of the member.The temperature was 101.F.,and the patient was very thirsty.The urine was scanty and high-coloured.The attack lasted for about ten days,and was one of acute gout:it cleared up quickly under the usual local and internal remedies.

He has had repeated slight attacks since,as he continues to take alcohol;but,as he has removed to another part of the country,I have not had occasion to see much of him of late.

Case 83.

W. B.,aged forty-four,a clerk.This man had taken large quantities of whisky and brandy for years,but I had not had occasion to attend him until April,1907. He was then in bed,and had all the early symptoms of acute pneumonia.Both lungs were affected - the left more than the right;and here,as I have found in the majority of all cases of pneumonia that I have attended where alcohol has been taken to excess,the patient showed a flatness from the very first.Brandy seemed to have no effect on the cardiac weakness,and even heart tonics did not appear to be of much use.On the sixth day the heart gave out,and the patient died.

I am of the opinion that when a person who has

been addicted to alcohol takes a pneumonia, his chances of recovery are much less than they otherwise would be; and I have no doubt that a large number of deaths from acute pneumonia in men arise from this cause.

Case 84.

T. B., aged fifty-nine years, had been a chronic alcoholic for many years, but had never complained much of being out of health. His people came to see me about him, and said that he did not appear to have proper control of himself at times. He was irritable and easily upset, and from violent seizures he would become dull and taciturn. His memory became weak, and he was sleepless at nights. He suffered later on from melancholia and delusions of frequent occurrence. The speech gradually became affected, and there was a certain amount of facial motor paresis, the Argyll-Robertson pupil being also well-marked. In course of time the circulation became disturbed, and his face was flushed and the lips cyanosed. He also lost control of his bowels and bladder; and from first to last this case of "general paralysis" lasted two years. I have no doubt whatever that the disease was the outcome of excessive indulgence in alcoholic beverages.

Case 85.

W. R., aged sixty-eight, a fisherman. This man was a well-known whisky-drinker; he partook of his favourite beverage in the undiluted state always. So notorious did he become that he was called "Drunken Walter", and was more often seen about the public-house than most others in this district. He had always been healthy, but at the end of the fishing season, on the return of the boats after a good "drave", he was drunk for a week.

I was called to see him about midnight eighteen months ago, when I found him suffering from hemiplegia. The right arm and leg were paralyzed, and his breathing was stertorous. Under the usual medicaments, he gradually recovered to such an extent that he is now able to walk about with the aid of a stick; and I have never seen him the worse for liquor since.

Case 86.

R. L., aged thirty-four, a miner. This patient had been drinking hard for about a fortnight, and I was called to see him at the termination of his debauch. He was in bed and complaining of pain in the head, back, limbs, and throat: in fact, one might feel inclined to term the condition "influenzal cold". But what struck me here was the observance that powders of salicylate of soda and phenacetine had no effect whatever on the symptoms, that headaches of a severe type persisted for four days, and that at the end of that time he was distinctly jaundiced. After the second day he had no pyrexia, and the pulse was subnormal - about 60 to 65. The jaundice increased, and was not relieved by calomel and salines; but the tongue and gums showed here and there numerous small ulcers. Gradually the stools darkened, and the jaundice disappeared; but he was left in a weak condition, and seems to have lost forty-two pounds in weight during his three weeks' illness - it being in all eight weeks before he was able to resume his employment.

I have had in all fourteen patients

presenting symptoms similar to the above.

Case 87.

J. C.,aged thirty-six,a clerk,takes paroxysms of alcoholic indulgence,but remains sober for months together.His is the only case in my experience where the symptoms I am about to describe were alone present.

After a severe debauch he lapsed into a tremulous state,and seemed to shake all over;but otherwise he appeared to be quite well.He could not write,and his hands were the parts most affected.Whilst he was in this condition,which lasted for three days,it was impossible to make out anything that he tried to write down.The disease did not affect his speech,and he could walk quite well.

He was usually made well enough to work in three days under the exhibition of calomel.He never had acute alcoholic delirium,but I am of the opinion that he was a likely subject for it,were he to have persisted in drinking when he reached this tremulous state.

Case 88.

J. S.,a miner of forty-four years.This is the most violent case that I have ever seen.He has a drinking-bout every five or six weeks,and during that time he gives me the impression of being temporarily insane.He enters shops,and tries to wreck them;and during one seizure he came into my surgery,and during the few moments he was in alone he did serious damage to the furniture.Indeed,at times the police have to tie him up with ropes before they are able to convey him to the police station.

Undoubtedly this is a case of acute alcoholic mania.Next day he appears to be quite well,and very sorry for all the mischief he has wrought and of which, too,he seems to have not the slightest recollection. After paying his fine,he will resume work steadily for a few weeks,and then break out again.

Case 89.

W. C.,aged fifty-seven,an engineer.This was a peculiar case.Like the last one recorded,he would take periodical drinking-bouts.On practically every one of these occasions he would come to my surgery,or I would be urgently summoned,and find him complaining of pain in the region of the appendix;but pressure there did not seem to increase the discomfort.

The condition disappeared with the cessation of the debauch:when sober,he affirmed that he never felt better. It may also be noted that he never had any pyrexia:only the persistent complaint of irritation in the same spot on such occasions convinces me of the noteworthiness of the case.Indeed,only three weeks ago he had a debauch, and the same symptomatic accompaniment.

Case 90.

J. E. F.,aged twenty-nine,a grocer,has for long been in the habit of consuming about four bottles of beer every day for a pure love of drinking,although it never made him intoxicated,unless it were on a Sunday when he exceeded his ordinary allowance.

He came to me complaining of loss of appetite, a tired feeling in the legs,and disinclination to get out of bed in the mornings.He could not settle down to read at nights,and was at all times restless.His sleep was much disturbed,and he easily perspired.He was dispirited and apprehensive,and at times most irritable and unpleasant to live with.He was never sick,but after breakfast was somewhat nauseated - feeling then unfit for work,but improving as the day wore on.

I am sure that this derangement,which was more or less gastric in nature,resulted from beer-drinking:for on my advice he abandoned his vice,and is now improving rapidly in health,bright and happy.

Case 91.

T. B.,aged twenty-eight.This is one of many cases of a similar nature that I have had occasion to observe during the past ten years.The patient was given to taking alcohol at the end of the week,and he has been under treatment for gonorrhoea six times during the last five years.

Alcohol,taken after the style of this patient at the end of the week and refrained from on intervening days,appears to increase the desire for sexual intercourse on the occasion of each weekly debauch.He tells me that he has no inclination whatever for such a thing when he is sober;but immediately he comes under the influence of alcohol,he temptation is more than he can resist.

It has been my observation,particularly in the case of young men,that they have a craving for alcohol first,then this ardent dssire for sexual intercourse; so that it appears to me proven that alcohol acts as an abnormal stimulant to the reproductive organs.

Case 92.

F. A.,aged thirty-nine,a widow, had,unfortunately, since the death of her husband five years ago,been very much given to the frequent ingestion of alcohol in considerable doses.It was mainly,however,at the menstrual periods that the craving for the drug was so conspicuous.Like the last patient,she had then an extraordinary desire for sexual intercourse,and,unfortunately, gave way to the temptation.She told me,when I was called in to see her,that she was suffering from a chronic gonorrhoea,and that the cure of her alcoholism was now hopeless.

Here again,alcohol was the primary cause of excessive sexual desire;and the patient affirmed that such was entirely absent prior to debauch.I have no doubt whatever that,if this woman could be reclaimed from being a drunkard,her morality would forthwith become unimpeachable.

Case 93.

J. A. K.,aged 42.This man had worked as a miner from the age of fifteen until he was thirty-six years old;after that he bought a public-house,and was continually there in the dual capacity of proprietor and barman.Whilst working in the mine he was only in weight

nine stones and twelve pounds,and in height five feet and eight inches,but at the present time he weighs fourteen stones and six pounds.He has been in the habit of drinking more or less since he was twenty years of age,chiefly beer;and he tells me that he does not take any more now than he did when a miner.His public-house is in a low-lying part of the town,and the ventilation is far from the ideal:indeed,he affirms that the shop has always a strong odour of beer and other alcoholic drinks.

In view of the above,one would be prompted to suppose that this man has increased in stoutness mainly through living under the conditions described;and I am inclined to believe that,apart from the ingestion of alcohol,living for the most part of the day in such an extremely alcoholic atmosphere would induce certain individuals to put on flesh rapidly,and without any apparent injurious effect.

Case 94.

A. T.,aged fifty-eight,a labourer.I instance this case to show what a great craving some persons have for alcohol.Being more or less always in a penniless condition,he could not secure the amount of drink that he was continually on the look out for.He would even secure a gill of methylated spirits and dilute it with water,making in all a pint;in this way he would get a day's supply of drink for two pence.I have even known him in such a state as to break into a joiner's shop, and there drink spirit-varnish to satisfy his remarkable craving.Every penny he earns or begs goes for drink;he begs his food,and sleeps usually in cellars or on stairs.He has now got to that state of alcoholism that he is seldom or never sober.I have known him for the last eleven years,but he has never stood in need of medical attendance during that period.

Case 95.

E. L.,aged sixty-four.This woman has been a chronic alcoholic since I first attended the family ten years ago.At times she takes what one might term "a week off", and would be then more or less continuously intoxicated. This happens about twice a year.At the termination of the bebauch,she lapses into a state of melancholia and requires my attendance.

She affirms that she now wishes to die,and that anything that I may give her will do her no good. She sleeps badly,and is awake most of the night.She holds little or no converse with the rest of the household; and she gives one the impression that she has committed a criminal act,and is duly repentant of the same. She loses appetite,and takes what is offered quite mechanically and without comment.She refuses to be cheered, and is annoyed when anyone passes a jocular remark.

These attacks vary in their severity,and also in duration;but in about three weeks she is again quite well,though I have on two occasions had to prescribe a change of air to ensure her recovery.

Case 96.

J. F.,aged thirty-two,a chemist's assistant,came to me complaining of digestive derangement,sleeplessness, and a tired feeling making work a great burden.He was sick in the morning,had a nasty cough,and his tongue was furred and dry.He was never seen to enter a public-house,nor to be under the influence of alcohol.He eventually confessed to me that he took daily a largish quantity of diluted rectified spirits of wine,to which some aromatic bitter was added.This appears to have gone on for several years,but of late he increased the dose to satisfy an increased desire for stimulation. He was accustomed to take a quantity home at nights,and to consume it all before morning.

I duly informed him of the danger of taking alcohol in this form,and it is interesting to note that he entirely abandoned it - being now a total abstainer,and on the eve of commencing business on his own account.

Case 97.

J. McF.,aged thirty-eight.This is a case which is the most unique of all I have observed.I have asked several practitioners if they have ever had similar cases,and they have invariably replied in the negative.

This woman,though not a total abstainer,could not be considered a drunkard;and I have never seen her under the influence of alcohol,except on the three occasions that I am about to describe,all of these occurring when she was in labour.

About five years ago,I was called to her house for the conduct of her approaching confinement.When I arrived,she was in bed and so drunk that she did not realize my presence.I could not get her to answer any questions;and her neighbour informed me that she was in exactly the same intoxicated condition when she was summoned,by her boy of ten years,the husband being absent at his work.

I examined her,and found the head well down on the perineum;and,instead of having uterine inertia,the pains were regular and strong. The child was born half an hour after my arrival,and the third stage of labour was quite normal.I injected some ergotine in case of haemorrhage,and left her in this drunken condition. I called again in the evening and found her quite sober, and she affirmed that she had little or no recollection of what had so recently occurred.

On the second occasion,the child was born before my arrival;and,in spite of my former scoldings,she was as drunk as previously.

On the third occasion,there was a repetition of identical events;and her fiat to me was that "a pint of whisky is better than all your chloroform",and that she intended to be drunk every time she had a child.

Case 98.

Mrs. J. L.,aged twenty-eight.The degeneration of the race has become so serious that it is the duty of out profession to deal with the problem of its physical salvation.This young women,like so many others,had been

told that lactation would be greatly assisted by alcohol, which in this case at first took the form of stout or porter. She had never touched the drink before, but sson learned to like it; so that, from one pint of porter a day, she gradually increased her dose until she was consuming six in the twenty-four hours. From porter she took to beer, and then whisky; and I have seen her so drunk in the street as to be practically helpless. The child, instead of thriving, is puny and emaciated - partly from malnutrition and partly from sheer neglect. She came to spend her time with a company of other drunken sots in the streets; and her home, which used to be a model of cleanliness and thrift, is now a disgrace to civilization.

I have tried hard to reform her, but regret to record that she still drinks, though, fortunately, not quite so much as before.

Case 99.

J. B., aged forty-nine, a married woman. This case is here cited as an illustration of the effect of excessive consumption of alcohol on skin ulceration. The woman had suffered from a large varicose ulcer for the last three years, the situation of the ulcer being the external aspect of the lower third of the leg. She was much given to alcoholism. In order that the leg should have a fair chance of recovery, I caused one of her daughters to be kept at home to attend to the household duties, and ordered the patient to bed. In this way, I thought I might be able to prevent her getting whisky also.

For the first two weeks the ulcer healed up beautifully, and was much reduced in size under rest and continuous antisepsis. But one day I called to see her, and then found that she was intoxicated and had been so for twenty-four hours. On examining the member, it was seen to be very much inflamed, swollen, and the ulcer itself angry-looking and exceedingly painful to touch. The daughter told me that the patient had never been out of bed, but had made the boy purchase a bottle of whisky and conceal it in her bed.

The condition again improved under the usual treatment, and was nearly recovered from in six months; but she again became intoxicated and again suffered from leg-ulceration. Fortunately she seems now to have realized the error of her ways, and is a total abstainer and quite free from her former lesion and craving.

Case 100.

D. W., aged fifty-one. This patient - who, in instances the aggravation of ocular inflammation by excessive alcoholism - suffered from a septic corneal ulcer and accompanying conjunctivitis. It seemed to be doing well under treatment, until one week-end he got drunk, and remained more or less so for three days. Even though his wife had attended to the treatment most of the time, I found the condition very much worse - the corneal ulcer being very angry-looking and severe headaches present.

For the relief of the disease cauterization of the ulcer became necessary; but, as he still went on drinking

more or less, he remained continuously under treatment for a much longer period than any other similar case hitherto observed.